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TABLE OF CONTENTS

Meconopsis	E. H. M. Cox	1
Japanese Gardens—		
A Layman's Observations	H. G. Ihrig	3
Photinia—Notes on the Species	Pat Ballard	5
Mountain Hemlock	C. Frank Brockman	9
May I Present the Camellias,		
Grand Troupers	Helen G. Buzard	10
The Drug Plant Gardens and Laboratory,		
University of Washington	H. W. Youngken, Jr.	12
Arboretum Spotlight		16
Fertilizing	Bryan Taylor	17
Today's Demands	Glen Hunt	18
Notes and Comment		20
Arboretum Notebook		23
Book Reviews		26



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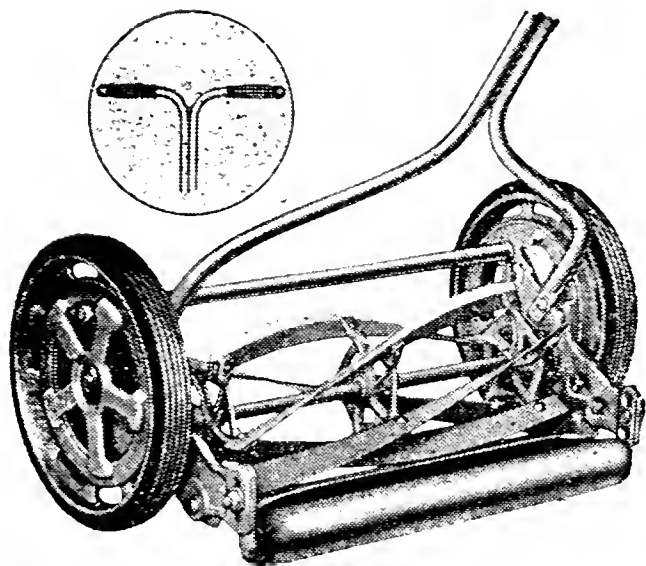
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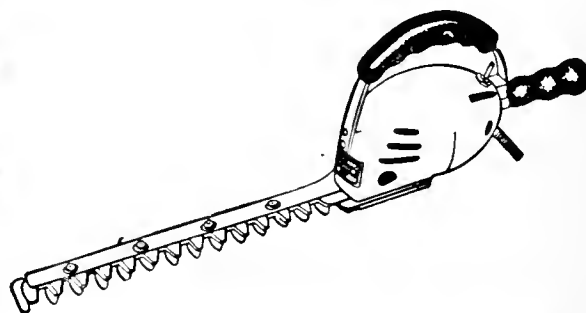
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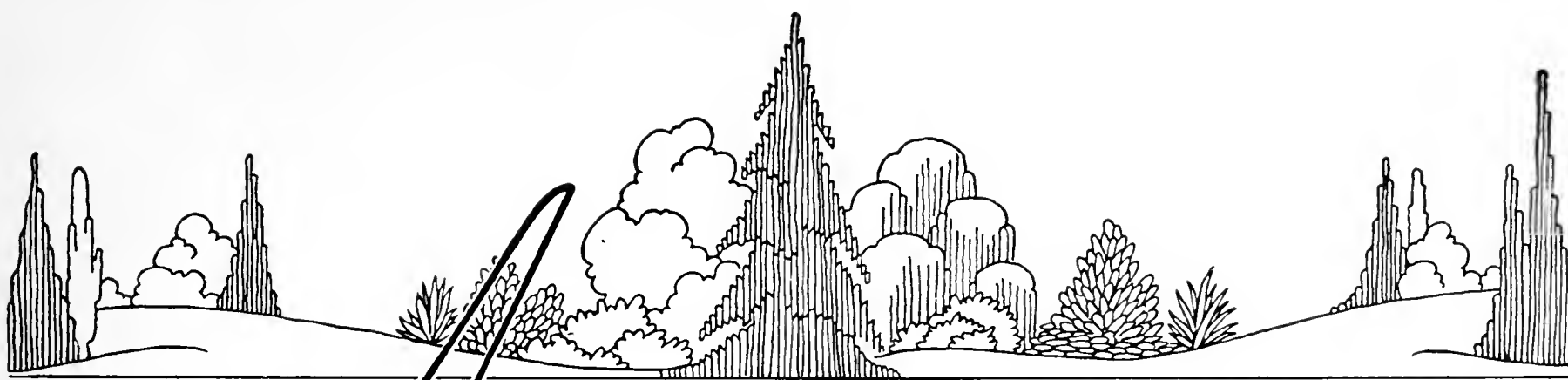
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The Arboretum Bulletin

VOLUME XVIII

SPRING, 1955

NUMBER 1

Meconopsis

E. H. M. Cox*

MECONOPSIS are members of the large and widely distributed family of *Papaveraceae*. One European species, our native yellow *Meconopsis cambrica*, has been known for centuries, and some of the Himalayan species, such as *M. napaulensis*, have been known, if not cultivated, for more than a hundred years. But *Meconopsis* as a genus only began to be grown by enthusiastic gardeners on the introduction in 1924 by Frank Kingdon-Ward of seed of *M. betonicifolia*, the Blue Poppy (Fig. 1), under its former name of *M. Baileyi*. Since then the genus has never looked back.

From a garden point of view the genus can be divided into three groups; firstly, those, whether monocarpic or perennial, which are so difficult in cultivation that they disappear after one or two years; secondly, those which are monocarpic but which are sufficiently easy to grow and set enough seed in cultivation for them to become a valuable and permanent section of our garden flora; and thirdly, those which are perennial and can be propagated by division as well as by seed. The first group can be ignored unless occasionally by specialists, as they are too difficult for ordinary cultivation. They include such species as *M. bella*, and the lovely pink *M. Sherriffae*, as

well as Wilson's scarlet *M. punicea*.

The second group consists of species that are monocarpic; as a rule they do not die off in winter, but form wide rosettes of their large pointed leaves from which next summer spring the tall flowering spikes. Some of these rosettes are strikingly handsome, like those of *M. regia*, with leaves up to 14 inches long and 3.5 inches wide, a soft green covered with golden hairs, or of *M. superba* whose leaves are equally large, but in this case the hairs are of the brightest silver so that the rosette glistens throughout the winter.

In this group the best species are:

M. integrifolia; Farrer's Lampshade Poppy, introduced both by him and by E. H. Wilson, from W. China. Does not form flat rosettes; has large sulphur-yellow flowers, usually single, sometimes two, occasionally three or four, on a stem, up to a foot high; flowers up to four inches across. Sets seed very freely, but flowers earlier in the season than most—with us towards the end of April. As there are no wide and flat winter rosettes, it can be planted about a foot apart. If they are grown slowly so that they do not flower until the third year, the flowers are far larger in size than if they flower as a biennial. Main enemy, soggy ground.

M. napaulensis; forms a large basal rosette up to 15 inches across, with leaves that are much lobed. The flowering stem may reach eight feet in rich soil, and many dozens of

*We are very happy to present this article from Mr. Cox following his promise to write for THE BULLETIN at the time he spoke to the Arboretum Foundation Membership last October.

flowers will be produced in succession varying from a good vinous red to a pale blue and to a bluey-white. In between there are many muddy purples, so seed must be taken from selected forms. If selection is carefully done, a large proportion of any batch of seedlings will come within the selected range of color.

M. paniculata; the yellow counterpart of *M. napaulensis* with flowers from a good primrose-yellow to a creamy white. There are almost no bad color forms, although some of the flowers may be smaller than others. Native of the Himalayas from Nepal to Assam, whereas *M. napaulensis* continues eastward into western China.

M. regia; leaves much more finely toothed and covered with golden hairs; flowers, on a stem up to six feet, larger and of a richer yellow than those of *M. paniculata*. Has an unfortunate habit of refusing to set viable seed, and so gardeners may have to wait until a further collection is sent home from Nepal. In my opinion this is the finest of all *Mecconopsis*. If you can get the seed to germinate it is as easily grown as any of them.

M. superba; this is almost the white equivalent of *M. regia* with pure white flowers and silvery hairs on the leaves. It sets fertile seed, but it is not nearly such an easy plant to grow, as it is inclined to resent too much winter wet and rots at the crown. I suggest that in your part of the country it should be covered in winter with a cloche or pane of glass.

M. violacea; like a violet-blue *M. paniculata* in its best forms, but many of the plants that are grown today appear to be crossed with *M. napaulensis* and the color varies. The true plant is really lovely.

All the above should be planted two-three feet apart in their final positions.

Perennial Species

M. betonicifolia; the original Blue Poppy. In its best forms a lovely almost sky-blue with wide petals, but there are forms where the petals are so narrow that they do not overlap and so form a cup-shaped flower, and do not confine themselves to the true blue color. Thus seed must be obtained from good

sources, or, if possible, divisions obtained from good plants. We have a form that flowers a good month later than the normal and so prolongs the flowering period from May until early July.

M. grandis; the original *M. grandis* has strap-shaped petals and not a very shapely flower, but this is more than recompensed by the peacock-blue color of the greatest intensity. This original form must be obtained as a plant, as it does not set seed, and practically never has done. The flowers are usually single on a stalk one-two feet high. There is a form introduced many years later by George Sheriff under number 600, much larger in every way with a most shapely cup-shaped flower of a lovely iridescent sheen of blue and purple and violet. This we find very easy to manage: It sets ample seed and can also be increased by division.

(Continued on Page 31)

Below:

Meconopsis betonicifolia, the Blue Poppy
of Tibet and China

(Fig. 1)

—PHOTO BY J. E. DOWNWARD



Japanese Gardens—A Layman's Observations

H. G. IHRIG*

JAPANESE gardens have a charm and fascination that is hard to define or understand. We have all seen pictures of them or heard them discussed. Some have been fortunate enough to visit them. Volumes have been written on the varying techniques, the different periods of development and types of design. Yet to the layman there is an illusive something ever present which somehow seems to have escaped the most studious analysis. These studies point out the details of a flat garden, the directional value of streams and water, the illusion of depth and dozens of other items. All these play a part and contribute to this strange beauty. But are they the answer? Is this fascination found only in such conventional gardens? It seems that a factor so widespread in Japanese culture must have had a broader base. Perhaps we should reconsider our definition of a garden.

Many people think that Japanese gardens fall into certain fixed categories, and while there are individual variations certain basic principles are established and rigidly adhered to. While this is true of certain special types of gardens and of certain periods, it excludes much of the horticultural development of Japan. Even the so-called "period" gardens were modified by changes in religious trends and customs. The earlier "meditation" gardens are quite different from the later "stroll" gardens.

In a strict sense, the art of gardening was imported from Korea during the reign of Empress Swiko (592-628 A.D.) and developed with the allied arts to adorn gardens of the emperor, royal princes and wealthy nobles. But it was not an art of the common people. Back of it were the shrine gardens, and surely there must have been an inherent love of beauty that was a common heritage. Later, during the development of private estate gar-

dens, there was a broad extension of shrine, temple and monastery gardens even in the most remote rural areas.

So today, in a general sense, a garden may range in size from a few square feet to many acres. Some follow an orthodox pattern, some depart from it radically, yet through all there runs that magic thread which can best be called Japanese art, for it is definitely and distinctively Japanese.

What, then, were the motivating factors back of this pattern of beauty? What gives it this distinctive quality? History does not help much. Historians are inclined to attribute almost everything to Chinese or Buddhist influence. These were powerful factors indeed but the Japanese developed along many independent, distinctive and original lines some of which antedated the continental influence. Again, factual information on history, culture or religion prior to the Chinese period is difficult to obtain and harder still to interpret. Many students are inclined to the belief that this motivation developed around the Shinto religion which is indigenous to Japan. Certainly there is much evidence that points to Shinto for it had its roots deep in nature worship. Today this horticultural influence is evidenced throughout Japan and, whether you view the smallest wayside shrine or a great national sanctuary, you feel that each is, in a sense, a garden—distinctive and varied, yet characteristically Japanese.

It is also natural to assume that back of the Korean, Chinese and Buddhist culture there was some basic concept or pattern upon which these later influences were superimposed. The Torii, for instance, which is so typically Japanese, had its origin in primitive Shinto yet was refined and brought to its present exquisite proportions by Buddhist artistry.

So these cultures played on one another, adding, refining, changing, yet all through ran the motive of primitive Shinto with its nature deities. Trees, rocks, water, sky and innumer-

*Mr. Ihrig, who needs no introduction to our readers, brings us this interesting impression of his recent visit to Japan.

able other inanimate objects were worshipped. The unusual or abnormal was held in great respect even when not worshipped as deity. Gnarled or dwarfed trees were offerings to or embellishments for the tree goddess. Rocks were collected and prized as jewels. A rock in the emperor's garden at Kyoto is revered because it resembles a turtle.

This horticultural influence is not confined to gardens, temples and shrines but permeates all Japanese life and art. Their screen paintings, which rank with the world's masterpieces, are but an extension of this love of nature which has been refined by the interplay of cultures.

It is said that the Japanese can create a garden out of anything or nothing. There are gardens of jagged basaltic rocks formed by the upthrust of volcanic action; there are wild dryadic forests of *Cryptomeria* tamed to new beauty; distant vistas framed and personalized as though this grandeur was created as a background for a particular garden alone; there are waterfalls and streams; ponds to reflect the beauty of skyline or the splendor of cherry blossoms; glens running riot with iris; gardens of peonies, lotus, azaleas, maples, camellias, cherries, and on and on. Diversity, diversity, yet with that one intangible thing which stamps them "Japanese."

The Japanese garden is seldom a thing apart or an end in itself. Rather it is part of a composite pattern in which buildings, terrain and landscaping are blended with such consummate artistry that one often wonders if the buildings were designed as part of the garden or the garden an extension of the buildings. The picture is always complete—one of line, form, texture and color.

This ability of the Japanese to blend their structures with the natural surroundings is especially evident in their shrines. For instance, Hakone shrine high on the mountain-side is reached by a long flight of stone steps bordered by huge columnar *Cryptomerias* more fitting and more beautiful than marble. Nikko is a masterpiece of artistic association. Nature created this Elysian forest park to which man's genius has added so much sym-

metry of design, decoration and associated planting that it is one magnificent picture garden. Or, if you please, a series of small gardens.

In speaking of buildings we must take into consideration other structures and furnishings which play an important part in gardens. There are bridges, large and small; some crossing Lilliputian streams which reflect the delicate lines of pale bamboo or the strength of grey monolithic spans. Wells, water basins, tea houses, steps, stones, screens and intriguing stone lanterns. The latter have long been a part of the shrine garden but are comparatively new in the private garden. The advent of the tea ceremony brought a change in garden design which required lighted paths and, according to the records, "dedication" lanterns were expropriated from shrines for this purpose. They became so popular that there developed quite an industry making lanterns for garden purposes and creating many interesting new designs. Their use has become widespread.

Throughout all these varying patterns of beauty there is that indefinable hallmark which distinguishes them from the gardens of other nations. No other Oriental culture, Korean, Chinese or Buddhist, has produced this distinctive quality in their gardens. Why? The only answer that seems to fit is that the Japanese contributed something from their own cultural background which other people lacked or failed to develop. This may be a single factor or a combination of many.

These notes are based on the assumption that this inspiration or motivating force may have revolved around the nature worship of Shinto. But it must be remembered that these are the impressions of a layman, not a professional. They are the reactions of an ordinary gardener who has long been intrigued with the haunting beauty of Japanese gardens and Japanese horticulture; who sought to look back of the conventional and generalized answers to find that potent factor which plays so great a part in Japanese culture.

Even if correct I have probably succeeded

(Continued on Page 32)

Photinia

Notes on the Species

PAT BALLARD *

THIS LIST, while not complete, includes the majority of described species and has been compiled almost entirely from the literature available in the Arboretum's library. It may serve to indicate both the size of the area covered by the genus, as well as the complications of nomenclature which have arisen over the years in some of the species.

Section I (according to Schneider)

EUPHOTINIA (evergreen leaves)

P. ardisiifolia Hayata (1915). Formosa

P. Beckii Schneider (1906). Yunnan

P. berberidifolia Rehder and Wilson (1912).
W. Szechuan.

Allied to *P. prionophylla* but very distinct, being a smaller shrub (seldom more than 2½ feet tall) and having smaller leaves.

P. Bodinieri Leveille (1907) S. China.

Related to *P. serrulata* and *P. Davidsoniae*.

P. Cavaleriei Leveille (1907).

See *P. Beauverdiana*.

P. crassifolia Leveille (1915). S. China.

Syn. *P. Cavaleriei* Leveille (1912, not 1907)

P. consimilis Handel-Mazzetti (1922). W. China.

Close to *P. prunifolia* Lindley.

P. crenato-serrata Hance (1880)

This is *Pyracantha Fortuneana*
(Maximowicz) Li (1944).

Syn. *Photinia Fortuneana* Maxim. (1873)

P. Davidiana Cardot (1919). Szechuan; Yunnan.

Syn. *Stranvaesia Davidiana* Decaisne (1874)

Discovered by Pere Armand David and introduced by George Forrest. "I have followed M. M. J. Cardot in referring our species (and *Stranvaesia undulata*; see Bot. Mag. t. 8418) to *Photinia* instead of *Stranvaesia* on account of the absence of the loculicidal dehiscence of the fruit which is the fundamental character of *Stranvaesia* as a genus as already pointed out by its author, Lindley." Stapf, in *Botanical Magazine*, vol. 149, t. 9008 (1923), Rehder places it in *Stranvaesia*, and it is under that genus that we find it in the *R.H.S. Dictionary of Gardening* and in W. J. Bean's *Trees and Shrubs Hardy in the British Isles*.

P. Davidsoniae Rehder and Wilson (1912).

W. Hupeh, China.

Closely related to *P. serrulata*, but with shorter-petioled leaves, larger flowers and fruits. Wilson described it as one of the handsomest evergreen trees of Central China. Bean and Rehder think it is probably as hardy as *P. serrulata* and the *R.H.S. Dictionary of Gardening* says "Quite hardy." Now growing in the Arboretum.

P. deflexa Hemsley (1895). Formosa.

Collected by Wilson.

Is *Eriobotrya deflexa* Nakai (1918).

P. dubia Lindley (1821). Nepal.

Appears to be an *Eriobotrya*.

Syn. *Eriobotrya dubia* Decaisne (1874).

Eriobotrya bengalensis (Wallich)

Hooker f. (1878).

Loudon says this is closely allied with *Raphiolepis*. It is about 20 feet tall and its bark is used in Nepal for dyeing cotton red.

P. Fortuneana (Maxim.) (1873).

This is *Pyracantha Fortuneana* (Maxim.)

Li (1944).

P. Franchetiana Diels (1912).

See *P. serrulata* var. *congestiflora*.

P. glabra (Thunberg) Maxim. (1873).

China; Japan.

Syn. *Crataegus glabra* Thun. (1784).

Sorbus glabra Thun. (1784).

Rather a tender shrub but well worth growing for its colorful new foliage, even more brilliant than that of *P. serrulata*. It is possible to prolong this color by pinching back new growth.

P. Griffithii Decaisne (1874).

Syn. *Eriobotrya Griffithii* Franchet (1899).

Nakai, in the *Journal of the Arnold Arboretum*, vol. V, p. 72, (April, 1924), says, "*Eriobotrya Griffithii* Franchet . . . *E. lasiogyna* Fr. . . and *E. prionophylla* Fr. . . belong to *Photinia*."

P. integrifolia Lindley (1821). Nepal to Assam.
Introduced 1820.

P. japonica Franchet and Savatier (1875).

Is *Eriobotrya japonica* Lindley.

Bean says it is not hardy enough to have been widely cultivated, but there is a beautiful large shrub in a Bellevue garden, another on Mercer Island, and probably several more in the city.

P. lasiogyna (Franchet) Schneider (1906).

Syn. *Eriobotrya lasiogyna* Franchet

See under *P. Griffithii* above.

P. Lindleyana Wight et Arnott (1874).

Sikkim to Ceylon.

*The second of Mrs. Page Ballard's article on *Photinia*; Part I appeared in the Winter 1954 issue.

Syn. *P. Notoniana* W. et Arn. (1874).

Schneider keeps the latter as a distinct species.

P. niitakayamensis Hayata (1911). Formosa.

This was first identified with *P. integrifolia* Lindley and later with *P. Notoniana* Wight. Hayata, after examining types of these species at Kew, "found that they are not at all in accordance with the present plant . . . having much larger and thicker or even coriaceous leaves." Transferred to *Stranvaesia* by the author in 1919.

P. Notoniana Wight et Arnott (1874).

See *P. Lindleyana*.

P. obliqua Stapf (1924). E. China.

Related to *P. glabra* but leaves oblanceolate and longer.

P. prionophylla (Fr.) C. K. Schneider (1906). Yunnan, China.

Syn. *Eriobotrya prionophylla* Franchet (1890).

Interesting in its leaves, which are 1 to 3 inches long, with margins almost spiny-toothed.

var. *nudifolia* Hand.-Mazz. (1933).

P. prunifolia Lindley (1837) E. China.

P. serrulata Lindley (1821). E. and C. China.

Syn. *Crataegus glabra* Loddiges (1818)

not Thunberg (1784)

Mespilus glabra Colla (1824)

P. pustulata Lindley (1837)

This beautiful shrub is outstanding at any time of the year, but particularly striking in the spring when its new leaves unfold a coppery red. It has been grown in English gardens for almost 150 years. In 1844 Mr. J. C. Loudon said: "In situations too cold for planting this tree as a standard, it well deserves a place against a wall . . . Prices in London nurseries 1s. 6d. each; at Paris, 1 franc . . ."

var. *congestiflora* Cardot (1918). S.W. China

Syn. *P. Franchetiana* Diels

var. *rotundifolia* Bean

Leaves shorter and broader than type.

P. Sieboldii G. Don (1832)

This is *Raphiolepis umbellata* Makino (1902)

P. stenophylla Handel-Mazzetti (1933). S. China.

P. Tsaii Rehder (1938). Yunnan, China.

Bush to 4½ feet, related to *P. stenophylla*.

Section II HETEROMELES

(leaves evergreen, stamens 10)

P. arbutifolia Lindley (1821).

California and Lower California.

Syn. *Crataegus arbutifolia* Aiton (1811)

Heteromeles arbutifolia Roemer (1847)

Leaves similar to *Arbutus Unedo* but minutely stipulate. Hawthorn-like flowers in corymbs. Stamens 10. Bright red berries give it the common name of Christmas Berry. The

demand for this shrub for holiday decorating in California has become so great that there are now Toyon groves to supply that market. It will grow in partial shade or full sun and is not too demanding as to soil or exposure. Lester Rowntree sings its praises saying, "It is so adaptable it is hard to make a failure of growing it." A Toyon, or Christmas Berry tree, measured in Montecito, California, in 1929 was 35 feet tall and had a spread of 43 feet.

var. *cerina* Jepson. San Luis Obispo Co. to N. Monterey Co. Yellow-berried form.

var. *chrysocarpa*. Also yellow-berried.

var. *macrocarpa* Munz. Fruits larger than type.

P. mexicana (Baillon) Hemsley (1880).

S. Mexico.

Syn. *Chamaemeles mexicana* Baillon (1869)

Schneider considered it closely related to *P. arbutifolia*.

Another Mexican species is *P. oblongifolia* Standley (1929).

Section III POURTHIAEA

(deciduous leaves)

P. amphidoxa (Schn.) Rehd. and Wils. (1912).

Central China.

Syn. *Stranvaesia amphidoxa* Schneider

(1906)

Unique in having 5 styles and larger fruit. Shrub to 10 feet.

var. *amphileia* Hand.-Mazz. (1933).

P. arguta Lindley (1837). Himalayas.

Syn. *Pourthiaea arguta* Decaisne (1874)

Sorbus arguta Zabel (1903)

Closely allied to *P. villosa*. Leaves longer and narrower.

P. Beauverdiana Schneider (1906). W. China.

Syn. *Pourthiaea villosa* Pritzelt

(not Decaisne) (1900).

P. Cavaleriei Leveille (1907, not 1912)

Shrub or slender tree to about 30 feet. Good autumn color. Hardy. Leaves are quite distinct in having rib-like veins beneath.

var. *notabilis* (Schn.) Rehd. and Wils.

(1912)

Syn. *P. notabilis* Schneider (1906)

P. Benthamiana Hance (1866). S.E. China.

Syn. *P. Calleryana* (Decaisne) Cardot

(1918)

Is *Stranvaesia Benthamiana* Merrill (1917)

Leaves oblong, entire, glabrous. Flowers in much divided corymbs.

P. Bergerae Schn. (1906). W. Hupeh

Discovered by E. H. Wilson.

P. birmanensis Schn. (1906). Burma.

Pourthiaea arguta var. *latifolia* Hooker (1878)

- P. Cardotii* Metcalf (1939). E. China.
Syn. *P. subumbellata* var. *villosa* Cardot.
Flower stalks pubescent; fruit only $\frac{1}{4}$ inch long.
- P. glomerata* Rehd. and Wils. (1912). Yunnan.
Small tree to 30 feet. "A very handsome species." (R. & W.)
- P. hirsuta* Hand.-Mazz. C. China.
Flowers in sessile, umbellate cymes, 2 to 5 flowered. Fruit elliptic.
- P. impressivena* Hayata (1913). Formosa.
- P. laevis* De Candolle (1825).
Is *P. villosa* var. *laevis* Dippel.
- P. lancifolia* Rehder and Wilson (1912). Yunnan.
Closely allied to the Indian *P. arguta* Decaisne; it has willow-like leaves which are glabrous even when very young.
- P. lucida* Schn. (1906). Formosa.
Syn. *P. villosa* var. *formosana* Hance (1866)
Pourthiaea lucida Decaisne (1874)
- P. parvifolia* Schneider (1906). W. and C. China.
Syn. *Pourthiaea parvifolia* Pritzell (1900)
Photinia subumbellata Rehder and Wilson (1912)
Slender-branched shrub 6 to 10 feet tall. Young shoots red. Leaves about $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long. Flowers about $\frac{1}{2}$ inch wide. Fruits dullish red or scarlet. Hardy at Kew.
- P. Schneideriana* Rehder and Wilson (1912)
W. Hupeh
Slender tree to about 25 feet. Allied to *P. Beauverdiana*.
- P. subumbellata* Rehder and Wilson (1912)
See *P. parvifolia*
var. *villosa* Cardot (1918). See *P. Cardotii*.
- P. taiwanensis* Hayata (1911). Formosa.
Near *P. arguta*, but with more finely toothed leaves.
- P. variabilis* Hemsley (1887).
See *P. villosa* DeCandolle.
In the *Journal of the Royal Horticultural Society*, vol. LIX, page 104 (1934), there is a description, under this name, extolling the great brilliance of its autumn color.
- P. villosa* DeCandolle (1825).
Japan, China, Korea.
Syn. *Crataegus villosa* Thunberg (1784)
Stranvaesia digyna Siebold and Zuccarini (1845)
Pourthiaea villosa Decaisne (1874)
Photinia variabilis Hemsley (1887)
Sorbus villosa Zabel (1903)
Shrub or small tree, extremely variable as to its pubescence. Should be grown for its orange fall color, attractive habit, and bright red Hawthorn-like fruits.
forma Maximowicziana (Leveille)
Rehder (1939). Korea.
Has leaves that are rounded and abruptly

short-acuminate or truncate at apex. They are strongly veined with impressed veins above.

var. *laevis* Dippel (1893)

Syn. *Crataegus laevis* Thunberg (1784)

P. laevis DeCandolle (1825)

Leaves longer-pointed than type. Branchlets and flowers are usually glabrous. Its brilliant red fruits are about $\frac{1}{2}$ inch long.

var. *sinica* Rehder and Wilson (1912)

C. China.

Discovered by Henry and introduced by Wilson in 1901. A slender tree with downy young shoots, the leaves thinner in texture than the type, flowers and fruit that are fewer but larger. It will grow to about 25 feet.

var. *Zollingeri* Schneider (1906)

Syn. *Pourthiaea Zollingeri* Decaisne (1874)

It has been brought to our attention that *P. serrulata* is sometimes subject to mildew. This difficulty does not seem to be widely spread and some growers believe that there are only certain forms of this species which are affected by mildew and usually only when planted in some shade. One nurseryman who has grown it quite extensively feels that if care is taken not to propagate plants which have a tendency toward mildew there is little chance of bringing this disease into your garden.

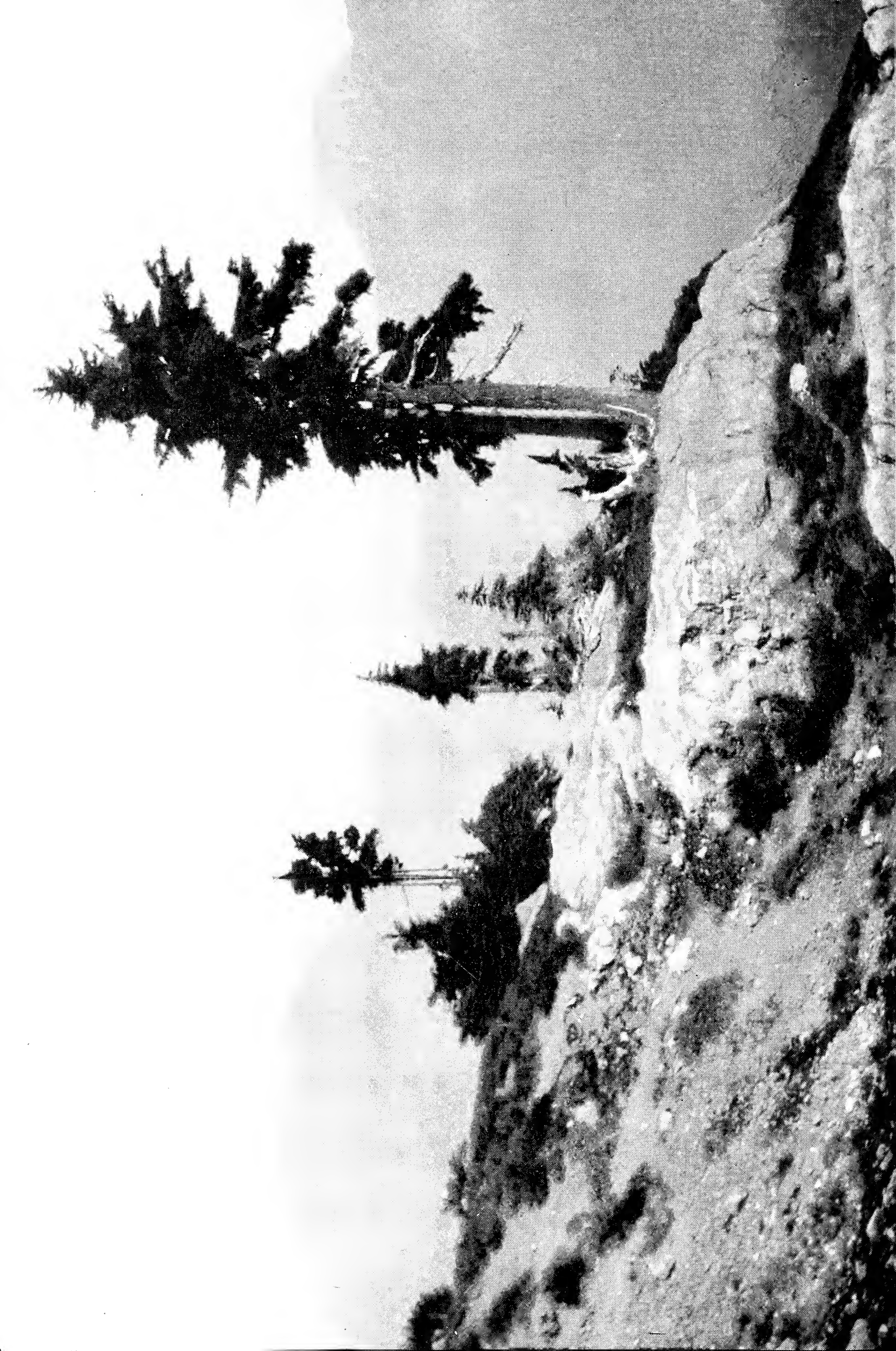
For much of this information I am deeply indebted to Mr. Mulligan and Mr. Witt who patiently produced references and explanations as palliatives to my perplexity. Any errors are the result of my own unwitting misinterpretation of the facts.

1 1 1

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(Continued on Page 33)



Mountain Hemlock

Tsuga Mertensiana (Bong.) Carr.

C. FRANK BROCKMAN*

NATURE commands stern tools by which to fashion her favorites in the "high country" of the Pacific Northwest. Yet the mountain hemlock, in spite of the rigors of its preferred environment, is characterized by great interest. Whether at timberline or in more protected locations in alpine meadows it adds greatly to the beauty of our mountain heights. At the upper limits of tree growth this tree assumes a ragged, irregular form symbolic of the rigors of such locations—sometimes being little more than a prostrate shrub. In more protected sites, however, it is personified by delicate grace and beauty.

Like all hemlocks it is characterized by a weak, pendant central leader which hangs in languid grace except when whipped by alpine gales. By this character one can readily recognize the mountain hemlock from the alpine fir, one of its most common associates, even from a considerable distance. Another feature which is typical of the mountain hemlock is the up-swept ends of its branches so that, in silhouette, its outline is not unlike that of a Chinese pagoda (Fig. 2). In contrast, the alpine fir has a stiffly erect central leader and a spire-like form with down-swept branches.

Closer inspection of the mountain hemlock will reveal that the plump, deep blue-green needles are borne in a distinctive, whorl-like arrangement on the short, leaf-bearing shoots. Individual needles, narrowed at the base into a short petiole, are variable in length so that

the branches present a rough, lacy appearance.

The singular beauty of its cones highlights the mountain hemlock in the late summer and early fall. These are pendant from the ends of the branchlets, are about two to three inches long, and vary in color from green to deep purple. In many instances these cones are a clear amethyst in hue. In consequence, during good seed years when the upper branches are heavily festooned with cones, the effect is not unlike that of a rope of rare jewels. After maturity, following the time when the scales open to liberate the seeds, the cones assume a dark brown color.

As one might expect, the mountain hemlock rarely attains large size. At timberline it is windblown, twisted or dwarfed by the high winds and heavy snows. In alpine meadows it occasionally attains a height of from 40 to 60 feet, while on better sites at lower elevations trees 100 feet high and 2½ to 3½ feet in diameter may sometimes be noted.

The mountain hemlock is one of four species of the genus *Tsuga* native to North America. The western hemlock is a common tree in the forests of the lower elevations of the Pacific Northwest. Two other species, the eastern and Carolina hemlocks, are found in the Northeast, Lake States and Appalachian region. Mountain hemlock is found along the Pacific Coast from Alaska to California, as well as in southern British Columbia, northern Idaho and northwestern Montana. Throughout this extensive geographical range, except for its northern extremity in coastal Alaska where it is found at sea level, it grows at the higher elevations at and below timberline.

In the words of John Muir, famous American naturalist, "the best words only hint of its charms. Come to the mountains and see."

*Mr. Brockman's notes on Native Trees of the Pacific Northwest are always most welcome. This is his tenth article in the series.



Mountain hemlocks on Mazama Ridge,
Mount Rainier, Washington

(Fig. 2)

—PHOTO BY C. FRANK BROCKMAN

May I Present the Camellias, Grand Troupers

HELEN G. BUZARD*

THIS is intended as a very informal introduction to a delightful family, the Camellias; to afford at least a nodding acquaintance with some of the less-well-known relations and renew friendships with others. You'll find them charming, handsome and dependable, never intrusive or demanding. They are trim, neat and enduring and grow in stature and productivity with the passing years.

The family name *Theaceae*, accepted by some historians, disputed by others, will serve us here. Several branches of the family have migrated from their far-flung native haunts—China, Japan, India, Korea—to take residence in the United States. At the University of Washington Arboretum you can meet various branches of the family—*Camellia*, *Eurya*, *Gordonia*, *Stewartia*, *Franklinia*—who have settled down to add their contribution of beauty to our gardens.

In season each puts on its own display. Camellia stages the greatest pageantry of them all. For most of us Japonica (*C. japonica*) is the undisputed star with a repertoire that is legion. From January to May it is constantly on stage in varying forms and color; when the show is over there is quiet, serene retirement into the background.

Japonica's first appearance dates back several generations. Old roles are still repeated, each year new ones are added. In the early part of the last century when living was more courtly and formal, neat, trim imbricated flower forms like "Alba Plena" who made her debut in 1792, or "Fimbriata" in 1816, or "Lady Hume's Blush" in 1806 were the vogue. Today we enjoy a galaxy of varied roles; a demure "Debutante," a chaste "Purity," a Madonna-like "Auburn White," "Lady Vansittart" and "Queen Bessie," the "Masquerade," the Generals—"Dwight Eisenhower,"

"Douglas MacArthur" and George Patton";—a cool "Finlandia" or a brilliant "Flame," "Victory" and "Pax" (Peace). There are these and a thousand others for our pleasure, a "face and form" to fit our every need.

Though types have changed, colors remain much the same: white, blush, pale soft pink, through all the shades to rose reds and flame, with variegated variations of all. To date there are no yellows or blues. In "Frank Gibson," with a mass of golden stamens and soft deep cream petaloids casting an aura of deep cream on to velvety petals, there is a semblance of yellow. The so-called blues are merely muddy pinks faded to purplish shades.

If Japonica is the Star then Sasanqua (*C. Sasanqua*) most surely is the Soubrette. Appearing as early as October in roles much lighter than Japonica, Sasanqua holds forth alone until the appearance of the Star, when for awhile they share the spotlight together until Sasanqua bows off.

From England in the last few years have come the J. C. Williams hybrids, challengers for top billing. These half sisters of Japonica and *Saluenensis* are splendid performers. They are generous of their beauty, sturdy, trim, neat and well mannered. In fact, they combine the best qualities of their parents. You'll meet them in the roles of "Mary Christian," "Bow Bells," "J. C. Williams," "Donation," "First Flush," "Salutation" and others.

"Apple Blossom," with its heritage in question, is the Cinderella of the family. Like a prelude, "Apple Blossom" appears in late winter in a charming but modest mantle of fragrant apple-blossom-like flowers in a brave effort to dispel winter's gloom.

An aristocrat, *Reticulata* (*C. reticulata*) first made an appearance as "Capt. Rawes" in 1824. In the last few years an entire troupe has joined the procession. These are the Yunnan *Reticulatas* from China known as "Crimson Robe," "Shot Silk," "Moutancha," "Chrysanthemum Petal," "Pagoda," "Butter-

*Mrs. James Buzard has been included in our pages before (Spring 1954) and has lately added another honor to her list of accomplishments by being selected as garden consultant for *Sunset Magazine*.

fly Wings," "Large Cornelian," "Chang's Temple," "Lion Head," "Willow Wand," "Purple Gown," "Professor Tsai," "Noble Pearl," "Queen of Tali," "Confucius," "Buddha," "Osmanthus Leaf." Beautiful as their blossoms are with their clear colors, silky sheen on petals and unusual size, when their bloom is past they leave much to be desired, for their shapes are ungainly, scraggly and poorly clothed. Nor will they tolerate a cold, drafty stage such as we provide in a severe winter.

"Judith," who is probably a Wabisuke, is a player of bit parts, flashing on and off stage for a very brief appearance. The bright pink bells are quite attractive. However, with us at least, "Judith" has an odd habit of dropping her green mantle and appearing quite bare for a brief interval before donning new foliage. "Betty McCaskill" (*C. maliflora*) is a dainty miss from China, tall and slender in form, lightly clothed in small, medium green leaves, with tiny pale pink rose-like blossoms along the stems. A severe winter will prove her undoing and cool house conditions are more suitable. *Fraterna* (*C. fraterna*), of eastern Chinese origin, has single white flowers appearing in early winter, with long narrow petals, on pendulous slender branches with narrow, deep green leaves.

This one you will have to meet in the greenhouse. It is the most exclusive of them all, having made not more than one or two appearances in the United States. *Hongkongensis* (*C. hongkongensis*) bears little resemblance to the other kin. The foliage is large and heavy, the new unfolding leaves as brilliant in color as *Pieris Forrestii*. Few people have seen its bloom so there is little to be said except it is supposed to be small, bright red and single.

Thea (*C. sinensis*), the family tycoon, once inspired a famous party at Boston that triggered world-shaking events. Events which have reached down through the years to give us today freedom and leisure to enjoy unlimited privileges—garden ing among them. Though Thea played so important a part in history and is grown as an ornamental

throughout the camellia belt it has never been successfully raised as a tea crop in this country. Garden-wise, Thea is an attractive, much-branched evergreen shrub with somewhat smaller, darker, thinner and more serrate leaves than *C. japonica*. The flowers, which have a soft, powdery fragrance, are small, white, with deeply cupped petals that envelop a heavy tuft of golden yellow stamens.

Though Camellia is the most colorful, other branches of the family play important supporting roles. *Eurya* (*E. acuminata*) is a graceful evergreen shrub with small lustrous leaves and an interesting flattish branching pattern. It shyly tucks its tiny, inconspicuous blossoms in the leaf axils along the under side of the branches in March. *E. chinensis* is stiffer in form, darker in color and more rounded in leaf shape. *Gordonia Lasianthus* (Loblolly Bay) is an evergreen tree from the southern United States with long, shining dark green leaves. The white flowers, resembling a single *C. japonica*, occur at the tips of the branches cradled against a backdrop of foliage.

The Stewartias are quite unlike the rest of the family in their appearance. They are deciduous, much-branched small trees often with a peeling, flaky, distinctive bark. The twiggy upright frame is attractive in the winter scene. The foliage is thin, medium green, lacking the luster characteristic of *C. japonica*, and slightly smaller but turning to brilliant colors in autumn, especially in *S. monadelphica* and *S. sinensis*. The flowers vary slightly in size in the species; *S. pseudo-camellia* about two inches across, *S. koreana* somewhat larger. Crepey, silky textured white petals in a single row around sunbursts of yellow stamens resemble wild roses more than camellias. The flowers of *S. ovata* var. *grandiflora* are the largest and have purple stamens. Flowers last little more than a day though the trees bloom for two to three weeks in July and August.

Franklinia alatamaha, with its interesting background and history of being found in the Deep South, then lost from its native habitat

(Continued on Page 32)

The Drug Plant Gardens and Laboratory, University of Washington

H. W. YOUNGKEN, JR.*

"For every simple, every herb we search and hunt wide through the world."

—RICHARD WAGNER (1813-1883), *Parsifal*, Act I.

THE search of the plant kingdom for new and better medicines is just as vital a part of research today as it was a hundred years ago. The greatest modern stimulus in this direction has occurred during the past decade as a result of re-investigations of certain molds and soil actinomycetes for antibiotics (penicillin, aureomycin, terramycin, etc.), of several higher plants such as Mexican Yams (*Dioscorea* spp.), *Strophanthus*, lily and cacti species for drugs of use in arthritis, and certain Veratrums and Rauwolfias for medicines of use in high blood pressure. The Eastern Regional Research Laboratories of the U. S. Department of Agriculture has recently investigated more than a thousand higher plants collected from world-wide sources, mainly for types of chemical molecules (steroid saponins) thought to be useful in the synthesis of anti-arthritic drugs such as cortisone. A score of university and industrial laboratories are presently re-searching plants for various kinds of chemical compounds of use in medicinal synthesis. Nature's laboratory and its plants from almost everywhere continue to be scrutinized for materials of value in the treatment of diseases.

Drug plant gardens (also called medicinal plant gardens) often originate as a result of popular interests in plants from a functional point of view such as the above rather than one of aesthetic character. Most drug plants have very few showy characteristics or any dynamic appeal from a gardening point of view. Some of these gardens have existed in various world areas for centuries. From earliest times their purposes as collecting centers have been multifold but in the main they have served as research and teaching laboratories

where data could be gathered on the constituents, identification and improved methods in the cultivation, propagation and breeding of certain medicinal plant species.

The renewed interest in and extensive investigations of plants for their medicinal constituents, such as has been mentioned, have further increased the need for domestic drug garden facilities. Greater efforts have been made in several universities of this country and abroad to revitalize older gardens and to establish new ones. At present there are about twelve of these special gardens in the United States, mostly associated with universities. At least four of these have been established during the past ten years. In some instances (for example the Universities of Washington and Minnesota drug gardens) the usual garden facilities have been expanded to include those for chemical and physiological research so that active programs of this kind, considerably beyond the botanical aspects afforded by such a collection, can be pursued.

During periods of world wars when foreign habitats for certain imported drug plants have been made inaccessible, materials from American university drug gardens have been the nucleus for the maintenance of domestic supplies. But with few exceptions (for example, certain mints, digitalis and belladonna) during more normal world trade periods domestic commercial ventures in drug plant cultivation have not been lucrative and have frequently not been able to compete with foreign sources. Therefore, without garden collections under institutional sponsorship in several geographical areas of the United States, much of the practical knowledge concerning the domestic growth of several important medicinal plants would be lacking. Indeed, materials for research would be seriously deficient.

*Dr. Youngken is professor of pharmacognosy and director of the University of Washington Drug Plant Gardens.

Historical Development

Thus it was with considerable foresight that Dean Charles W. Johnson of the College of Pharmacy of the University of Washington undertook the beginning of a garden of medicinal plants in the spring of 1911 on the campus. About one acre was set aside then for this purpose and Professor Albert H. Dewey of the pharmacy faculty was the first director.† The garden did not expand very rapidly until about 1917 when Mr. James Thompson took charge. Thompson came to the University from the University of Minnesota and while at Washington (1917-1922) he was also employed part time by the Bureau of Plant Industry of the U. S Department of Agriculture. Since this was a major world war period and supplies of such drug plants as belladonna (*Atropa belladonna*) and digitalis (*Digitalis purpurea*) were critically low, the joint program with government

support was directed largely to the cultivation and processing of these two species. Large plots of belladonna and digitalis were cultivated east of "Old Bagley Hall", now the School of Architecture building.

A great expansion in the University garden area has taken place since 1922 when Ludwig Metzger became the head gardener and later supervisor under the direction of Dr. Forest J. Goodrich, Professor of Pharmacognosy. Dr. Goodrich is now dean of the College of Pharmacy.

Many plots were developed along Stevens Way with a large area in the rear of the present forestry building (Anderson Hall) and between "Old Bagley Hall" and the present Administration Building. Ludwig Metzger had wide acquaintance with several European gardens, especially those of his native country, Germany. Consequently he introduced hun-

†The present garden space now occupies about four acres on the University campus.

Below:

The Drug Garden, University of Washington
(Fig. 3)

—PHOTO BY E. F. MARTEN



dreds of species from abroad and in general arranged the garden plantings according to a European style. Extensive seed and plant exchange programs were developed under Metzger and the garden received world-wide acclaim. The garden collection also included many horticultural varieties of plants. Large rose and lavender collections were begun and one *Rosa* species and a lavender hybrid were extensively studied for their values in perfumery. Metzger's knowledge of plant propagation was indeed great and this led him into numerous undertakings apart from those related to drug plants. For example, he successfully propagated an eight-foot limb from the Washington elm, located in front of Clark Hall on the campus. The parent tree originally had been propagated about 30 years previously by a cutting taken from the famous Cambridge, Massachusetts, elm under which George Washington took command of the American Army in 1775. This newly propagated specimen (now a third generation), with its induced roots well balled, later in 1931 was shipped to the east coast where it became a replacement for the original Washington elm and was planted on the Commons at Harvard Square, Cambridge, near the site of the original tree.

The University Drug Garden was moved from much of its original site in 1939 to its present location directly behind the Chemistry-Pharmacy Building (Bagley Hall). This was a difficult operation since soil conditions of the area were of the poorest quality. Extensive quantities of loam were eventually hauled to the four-acre area from the University Union Bay Gardens by pharmacy students. Unfortunately much of the soil was infested with horsetails (*Equisetum* species) and this has been a constant pest to cope with ever since. At about the same time a laboratory building and five greenhouses were erected on the south side of Stevens Way adjacent to the Drug Gardens. This building was named the Drug Plant Laboratory and it is now a busy center for the garden activities as well as for teaching and research (Fig. 3).

Garden Arrangements

The drug plant collection has been planned basically for teaching purposes with several sections arranged according to a geographical plan and others according to the chemical and physiological nature of certain plant constituents. The geographical arrangements include a native European section with several species, e. g., *Matricaria*, *Foeniculum*, *Pimpinella*, *Potentilla*, *Scilla*, *Absinthium*, and several yews of central and southern Europe. An Asiatic section includes such species as several varieties of the opium poppy, *Ephedra*, Chinese rhubarb, and tea. One large section is devoted to plants indigenous to the Pacific Northwest. Here, for example, is the famous Cascara Circle,‡ a unique circular arrangement of *Rhamnus Purshiana* trees (*Cascara Sagrada*) the bark of which has often been called the "all-American laxative." Other plants in this area include the *Uva-ursi* (Bearberry), *Oplopanax*, dogwood, *Abies* and *Veratrum*s.

One of the most frequented sections of the garden is the Condiment and Flavor or Kitchen Herb Section. In this collection are many varieties of well-known herbs. Among these are the mints, peppermint, spearmint, thyme, rosemary, savory, common balm, basil, and catnip. Here also are the tarragon, artichoke, skirret, and bay laurel. Considerable decorative use is made of the bay laurel (*Laurus nobilis*) throughout the garden since it lends itself so well to exotic trimming.

A large central section of the gardens has been divided into beds in such a manner that drug plants which possess potent constituents are grouped together according to the physiological effects of these constituents. For example, several species that produce nerve and muscle sedative effects (belladonna, stramonium and henbane), heart stimulating actions (digitalis, adonis, and squill) and certain plants yielding insecticides (pyrethrum flowers and tobacco species) are arranged to-

‡So named in 1948 as an unique setting for a meeting on the campus of the National Plant Science Seminar, an organization of drug plant specialists in the United States.

gether. This makes an effective grouping for field lecture purposes when students are presented subject matter in the classroom according to the pharmacological nature of such plant material.

Many pharmaceutically important shrubs, herbs and trees, probably totaling well over seven hundred species, are maintained in this field collection. In addition, a large collection of tropical and semi-tropical drug plants has been developed in a central greenhouse adjoining the Drug Plant Laboratory. Here, for example, one may find the *Serenoa* palm, vanilla, African ginger, cardamon, medicinal aloes, castor oil plant, *Cassia senna*, citrus species and *Derris* or the rotenone plant.

Garden Activities and Research

Two important garden projects have been expanded by the garden staff under the leadership of the present supervisor, Dr. Walter R. Naumann. § One has been a revision of the drug plant seed exchange program and the second an elaborate composting project for developing soil conditions in much of the four-acre planting area. As a result of the first project a seed exchange list is now made available annually in December. In 1954 this list included 233 species of drug plants. During the same year seed and plant exchanges were made with 16 foreign universities and botanical gardens and about 10 American stations. More than 650 packets of seeds were mailed from the garden in this period. The three large compost piles that may be seen in the nursery south of the plant laboratory have saved hundreds of dollars in soil care and fertilizing. The rather poor soil condition of the general garden area has been rapidly improved and the value of this soil program has been reflected in the quality of plant growth.

This entire field and greenhouse facility provides students of the University and other institutions with many living materials that otherwise would be hardly possible to obtain. It, therefore, is a unique laboratory and has

§Dr. Naumann, prior to this time, had been recorder and in charge of seed exchange at the University Arboretum. He succeeded the late Ludwig Metzger as garden supervisor in 1950.

received much acclaim throughout the world. Other University departments frequently share the gardens and they are often visited by classes in botany, zoology, forestry and home economics. Research students in biochemistry and pharmacology likewise find materials of value in their work. During the year, local garden clubs often plan field trips into the Drug Gardens as do also high school science classes and scouting groups.

The garden activities are correlated with an extensive research program within the Drug Plant Laboratories. Here one greenhouse is devoted to problems in plant propagation including seed germination and cuttings. Two other houses are utilized for research by graduate students on pharmacognosy (that subject of the pharmacy curriculum which deals with natural products as sources for pharmaceuticals). A large portion of this research has been supported by fellowships and grants received from pharmaceutical industries. Some research projects have been supported by funds from the Washington State Fund for Medical and Biological Research. The investigations are of two general types: (1) Studies of the plant biochemical functions which lead to the formation of certain therapeutically active compounds; (2) A search among several plants for new therapeutic drugs. These studies have required a variety of equipment and supplies. The small laboratory is now thoroughly active with seven research students and two post-doctorates. Results of many of these studies during the past few years have been published in the scientific literature in some fourteen publications. One of these reports received the national Edwin L. Newcomb Award for Research in Pharmacognosy. In recent years teachers from England, India and Japan have engaged in post-doctorate studies in the laboratory for the purposes of observing teaching and research methods.

Personnel

To maintain the Drug Garden activities, two gardeners are employed in addition to the director and supervisor. One of these, Mr.

(Continued on Page 32)

ARBORETUM SPOTLIGHT

Magnolia Kobus var. *borealis*

"...wealth of white blossoms..."

BLOOMING in mid-April at the head of Rhododendron Glen will be one of Japan's finest contributions to the magnolia group, *Magnolia Kobus borealis*. Millais says: "Those who love magnolias and the magnificent effect they give should leave no stone unturned to obtain *M. Kobus borealis*."

A near relative to the Star Magnolia, *M. stellata*, the similar pure white flowers have a shaggy form with a fragrance which is said to be markedly different from the almond-like scent of the type.

Though not showing bloom on very young trees, once the flowering stage is reached one will be rewarded by an unbelievable profusion of bloom. The Arboretum plant, imported with others from Japan in March, 1940, first flowered here nine years later (Fig. 4).

A tree growing at Bodnant, the late Lord Aberconway's estate in North Wales, reached the height of 30 feet with a 35-foot spread in 1940 and in the spring of that year something like 20,000 flower buds were estimated. So, the Arboretum's specimen is growing up too—now approximately 20 feet tall—and awaits, in true tradition, all challengers who may wish to count its own "wealth of white blossoms."

GENE WEBB

1 1 1

Below:

Magnolia Kobus var. *borealis*, in
Rhododendron Glen in April

(Fig. 4)

—PHOTO BY B. O. MULLIGAN



FERTILIZING

A Simple Program for Simple Gardeners

BRYAN TAYLOR*

BY SIMPLE I do not intend to imply that the gardeners are simple, as in Simple Simon, but rather that it is a straightforward program without frills, to be used ONLY by those who have no method at the moment. For those who have a method—please DO NOT abandon your own in favor of this in one fell swoop—test it first against your own. It is good, but may not succeed any better than other programs.

December 1: LIME. Spread 5 lbs. of hydrated lime per 100 square feet on perennials, rose beds and lilacs. (If ground limestone is used increase the quantity to 8 lbs. per 100 square feet.)

January 1: RAW BONE MEAL. Spread around all perennials, roses, shrubs and trees at the rate of 5 lbs. per 100 square feet. (NOT on ericaceous plants, such as rhododendrons.)

February 1: WOOD ASHES. Spread a layer over perennials and rose beds up to 1½-2 inches deep.

March 1: FARMYARD MANURE. If old, well-rotted manure is available, spread 1½-inch layer over all beds. As a substitute use a one-inch layer of well-rotted compost or a quarter-inch layer of any dehydrated manure, such as dried cow or sheep.

April 1: FISH FERTILIZER. Apply any liquid fish fertilizer at the rate of one tablespoon to two feet of height or spread to all plants. If the shrub or tree grows wider than it does high, then measure the spread. Dilute the fish at the rate of four tablespoons to one gallon of water.

May 1: FISH FERTILIZER. Repeat the April 1 dose.

July 1: FISH FERTILIZER. Repeat the April 1 dose.

NOTE: The fish fertilizer dates do not apply to rhododendrons and azaleas. Use the fish on them at blooming time and again a month later, at the rate of one tablespoon of liquid fish fertilizer to two feet of height or spread.

Lawn Fertilizing

January 1: Raw bone meal at the rate of 100 lbs. to 3000 square feet.

March 15: Any good lawn fertilizer at the rate of 100 lbs. to 3000 square feet.

June 15: Repeat the March 15 dose.

September 15: Repeat the March 15 dose.

This gives you an easy calendar to follow and one that should keep you out of mischief—particularly on New Year's Day. It is economical and will reduce the number of packages, usually without labels and the contents unknown, which decorate the shelves of your garage.

Remember that your shrubs and trees must have help from you to succeed—cut out that T-bone steak—have a hamburger and a sack of fertilizer! Reminds me of the story of the old gardener who took over a weedy and overgrown cottage garden and worked hard and long to restore it to its old beauty. One day the local Padre came by and leaning on the fence said: "The Lord and you have done a wonderful job, John." Old John straightened his aching back and, looking the Padre in the eye, replied: "He didn't do much of a job when He had it all by Himself."

*Mr. Taylor's "simple" rules are becoming a must with all Seattle gardeners.

Today's Demands

GLEN HUNT*

"GARDENS, like houses, are built of space. Gardens are fragments of space set aside by the planes of terraces and walls and disciplined foliage. Until now we have defined too nicely the differences between that space which is roofed and within the house and that which is left outside and around the house. We did not see, until the architect threw down his walls, that the space of house and that of garden are parts of a single organism; that the secret of unity lies in a unity of spatial sequences. The new vision has dissolved the ancient boundary between architecture and landscape architecture." This statement, by Joseph Hudnut, dean of the Graduate School of Design, Harvard University, clearly defines today's approach toward garden architecture. In a region so plant conscious, and justifiably so, this quotation comes as a surprise to many of us. We have thought of the garden only as a place to grow flowering trees and shrubs, enjoying them for their individual characteristics and seeing these plants in relationship to the other growing things around them. We will continue to appreciate plants and grow them for their year-round use, beauty and color if we first examine other aspects of garden design.

We are designing to fulfill our needs today. Design is individual. No two people can express the same idea. It cannot be taught. Neither the spoken nor the written word conveys design. It must be lived and experienced. It must express ourselves. An artist plans a painting before he applies his medium. He organizes the whole piece, divides it into areas in order to achieve pleasing relationships between each area, and each area to the whole. He chooses objects within the borders, relates these objects by such devices as texture and color to the whole composition. Today, the design of garden architecture demands a sim-

ilar treatment. In garden design we study related parts. It involves usable space, integrated with refined materials, arranged in a pleasing manner, to fulfill a specific need, for a definite problem, enriched with structural and living materials.

Today's demands on our architecture (architecture consisting of inside space and outdoor areas) call for a new approach. Our houses serve our human activities, provide shelter, become a place for recreation and leisure and are incomplete unless they provide beauty and enrichment. The result of out-of-door planning can only be appreciated in relationship to indoor areas. The front areas serve as an entrance, the entrance starting at the property line if allied with the structure, the link being use, materials and form. In many cases it doubles as an additional area for outdoor living if it is screened for privacy. Uses of the land vary, depending on the family and their activities. The living areas and dining areas are the most obvious and have been emphasized in "outdoor living." Most activities are carried out in this basic spot. The areas devoted to children's development might become the focal point for several years but this space should also be designed to have a pleasing relationship with the other outdoor areas. Gardening might be of prime importance to some families or individuals within the group. Room is then provided for the expression of that activity in designated areas and defined spaces. The garden becomes a place to display art and sculpture. These forms of beauty provide enrichment to the garden and pleasure for the household. However we enjoy ourselves, whether visually or physically, the garden should be useful and consist of integrated spaces and materials in a simple but pleasing manner. We are moving away from "styles" and closer toward individual expression within the nucleus of the family.

The semi-enclosed space, those areas that

*We are pleased to present a "first" article by Mr. Hunt, who is a graduate of Washington State College and is practicing landscape architecture in Seattle.

are protected from the weather, become a part of this integrated space. These areas include the sheltered patio, the screened terrace, those areas that function closely with the enclosed space. Many of our sites are exposed to wind and rain in all four seasons of the year. In designing a useful outdoor living site for this area I found that terraces, protected from summer breezes and constructed to catch the fall, winter and early spring sun, have proven a practical step in garden layout. Let us examine further possibilities. In our region, heated or unheated rooms attached to the house can be built. It can be constructed to open out to the garden in summer. These areas are not to be considered "greenhouses" although plants may be grown in them. They are planned for use and enjoyment. They are part of the house but flow into the garden, providing additional play and recreation room. Orientated to catch the warmth of the winter sun, they are usable in late fall and early spring months. They are easy to maintain, economical in construction (compared to residence costs). Could these spaces be the solution to outdoor living in the Pacific Northwest?

Economy, another constituent part of space organization, necessitates a close scrutiny of design. In many instances it is a prime factor in our design, whether it is economy of value, space or materials. We should be able to design (arrange our areas in space relationships) without disturbing nature's growth or man's work. If a preliminary study has been made, uses of the land studied and co-operation between architect and landscape architect achieved, a good starting basis has been achieved. The building is designed to fit the least desirable parts of the site. The usable horizontal areas are left for out-of-door planning. Organized space makes economical space. This is true, whatever size plot is being designed, from the small city property to larger country sites. The selection of materials to perform a certain job or serve a particular function becomes an easy choice. Each material chosen will harmonize with the other, maintain a working relationship with its neigh-

bors and give a good dollar value to the owners.

The establishment of basic areas constitutes preliminary planning. We strive for integration, permitting house orientation, exposures, site, circulation and topography to be the determining factors in basic arrangement. In addition, materials of the site—plants, trees, rocks—and elements of the house—wood, stone, surfacings—will outline the enriching qualities of garden space. Pattern alone will not be the key to design. The enclosed space and people will be of primary importance.

Today, as always, garden architecture demands beauty. The house and garden perform a function—it unites the elements within the landscape. It assures utility. It presents beauty in all its varied forms. Our gardens need not become cold and pulseless. They should express vitality and richness—yes, become an important phase of living. Our mediums are structural objects—pavings, screens, stone in varied textures, living materials—trees and shrubs arranged in pleasing combinations, chosen for seasonal interest, and winter color, grouped for planting unity—wood, water and rock arranged in unified spaces. We are conscious of natural objects in our region. We want them to play an important part in our landscape.

If more thought can be devoted to organized areas in a unified manner, enriched with structural materials and growing plants, the house and garden will reflect spatial planning and become the center of our living. Beauty will become an ever-present possibility. We will then be able to appreciate the objects around us which in turn will help us meet today's demands.

/ / /

Recent donations to the Arboretum include \$300.00 from the Seattle Garden Club for new azalea plants and fertilizer for Azalea Way; the same amount from West Seattle Garden Club for the benefit of Woodland Garden, and \$50.00 from the North End Flower Club for maintenance during the summer.

The Arboretum Bulletin

VOL. XVIII, No. 1 SEATTLE, WASH. SPRING, 1955

No part of this BULLETIN may be reprinted without the authority of the Arboretum Foundation.

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9 a. m. to 4:30 p. m.
Monday through Friday
Phone MInor 4510

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Special Notice

To keep memberships in the Arboretum Foundation in good standing, dues should be paid during the month payable. Active memberships more than three months in arrears will be dropped and THE BULLETIN will be discontinued.

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I hereby apply for membership in the Arboretum Foundation and remittance for same is enclosed to cover dues for the next succeeding 12 months.

Name.....

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All memberships are non-assessable.

Notes and Comment

1955 Rhododendron Show

THE SEATTLE Rhododendron Society and the Arboretum Foundation will co-sponsor a rhododendron show again this year. The exhibit will be held in the concourse beneath the U. of W. stadium as it was in 1954 and an even greater display of bloom is expected. It is anticipated that an annual "Rhododendron Week" will begin on May 9 and extend through the 15th with the highlight of the week being the show opening at noon on Thursday the 12th. Judging will take place on Thursday morning just prior to the official opening to the public at noon. Thereafter the exhibit will be open from 10:00 o'clock in the morning until 10:00 in the evening each day through Sunday the 15th.

The show will be of the same general type as in 1954. There will be landscape plantings, individual plant exhibits, a large cut truss class and flower arrangements featuring rhododendrons and azaleas. The attendance last year was double that of 1953, and it is hoped that in 1955 the number of visitors will be trebled over 1954. All growers of rhododendrons, amateur and professional, are urged to enter the show and to encourage general interest in the event. With a successful show this year the pattern will be set for making this rhododendron show one of the most important horticultural events in this country.

Admission charge will again be 75 cents and the profits from the show will go into the Floral Hall Fund. Advance sale tickets are being issued in the form of cards and will carry a door prize feature. An early and enthusiastic response to the advance ticket sale will insure the success of the show and will help greatly toward erecting a permanent showplace for all garden groups.

E. B. DUNN

✓ ✓ ✓

Mr. Brian O. Mulligan, our director, received a certificate of Honorary Life Membership in the Washington State Nurserymen's Association, conferred on him at the association's recent convention in Tacoma.

WE WOULD LIKE TO DRAW YOUR ATTENTION

To the January, 1955, issue of the *Morris Arboretum Bulletin* from Philadelphia and the first instalment of "In Search of Native Azaleas" by Dr. H. T. Skinner, director of the National Arboretum, Washington 25, D.C.

This is the record of very extensive and carefully planned journeys, from mid-March to mid-August, 1951, throughout the eastern and southern states to collect the widest possible range of both dried and living specimens of native azaleas from their localities. His illustrated story covers *Rhododendron canescens*, *R. austrinum*, *R. speciosum*, *R. atlanticum*, *R. nudiflorum*, *R. alabamense*, and certain hybrids among these species. It is of especial interest to students and growers of these beautiful, interesting, but highly confused shrubs, most of which are now well established (from other sources) in our own Arboretum.

The *Bulletin* is published by the Associates of the Morris Arboretum, Chestnut Hill, Philadelphia 18, Pa. Single copies are available, price 30c.

✓ ✓ ✓

To the fact that Mrs. Gilbert LeBaron Duffy's garden, long a matter of pride to the residents of Puget Sound, has gained international acclaim by being included in Robert Jackson's new book, *Beautiful Gardens of the World*.

✓ ✓ ✓

To an article by Dr. John C. Wister in the winter issue of *Plants and Gardens*, a publication of the Brooklyn Botanic Garden. It deplores the seeming tendency of highway engineers to route proposed highways through parks and arboreta and mentions the impending threat of the Lake Washington Bridge Highway to the University of Washington Arboretum. "While none of us wish to see private property destroyed by such highways, it does seem that damage to a few individuals might be a less serious matter than the long-time damage to arboreta."

Let's Brag About Our Arboretum Units

MAN has long bent his back to the heavier responsibilities of the garden and now, at long last, he is getting his just deserts. There are six enthusiastic Mr. and Mrs. Units madly delving into the study of plant material (how to propagate it and what to do with it after it has taken root); units in which the man-in-the-garden is gaining excellent basic information on just why that shrub should stay where it is instead of being moved to the far end of the domain. It may make for arguments, but now these discussions are between *two* informed members of a growing group of gardening amateurs.

In the interests of absolute equality, the Arboretum Unit Council has decided that no longer will the male members of the units be the forgotten men. There shall, in the future, be two evening Council meetings each year planned for these Couple Units. On February 24 members of the Husband and Wife Units met at the Arboretum Clubhouse to hear Mr. James Buzard (of the Arboretum greenhouse staff) share with us his knowledge and experience in propagation by seeds.

The next meeting will be in the fall and if you are interested remember that a unit may be formed by five couples. The only requirement is that each individual shall be a member of the Arboretum Foundation. There are several impatient couples in scattered communities just waiting for another name or two. Call Minor 4510 if you would like to add your name to the list.

✓ ✓ ✓

Each winter the Arboretum Unit Council sponsors a lecture course for its members, and we have just experienced another of those premiums which unit membership brings. Mrs. Wendell Brazeau gave us a six-lecture course on landscape design that sent us all home to take another look at our gardens, mayhap a bit of a jaundiced look, but this time with an awareness of what the ultimate should be and how to attain that perfection. Mrs. Brazeau is not only knowledgeable, she presents her

facts with a humor and charm that made each two-hour lecture utterly delightful but much too short.

/ / /

OFTEN Arboretum unit members are questioned about the eager interest and the sincere devotion evidenced by the 68 organized units of the Arboretum Foundation. What is the impetus that starts these ever-growing groups of men and women into organizing themselves for regular meetings and programs in the interest of the Arboretum?

This impetus might be something as simple and as beautiful as a casual passing near the Mt. Fuji cherry tree opposite the Clubhouse when in a white cloud of bloom. There is a feeling of appreciation that such beauty is planned and cared for, with so little effort on the part of the Seattle citizen, yet there for all to enjoy. In appreciation then, a new group of friends for the Arboretum is organized and formed into a unit, to assist the Arboretum in its planned growth, to acquaint strangers with what the Arboretum is doing, and to further our individual interest in flowers and plants by studying the effect of local soil and weather on many plants from distant climates, as well as our own native material.

After the formation of a new unit the members usually ask how they can be of specific service to the Arboretum, other than by acquainting people with its location, availability and purposes. In answer to this, a review of one of the Arboretum units and its assistance to the Arboretum might be of interest.

The Frances Macbride Unit No. 41 was formed in November, 1951, by a group of 24 women interested in the Arboretum and its future development. It was named to honor Mrs. Philip D. Macbride who has for so many years been such a true friend to the Arboretum and to all struggling new gardeners.

At the second meeting of this group one of the members brought flats of a particularly beautiful blue primrose that she had grown. These sold for a total of \$20.00, and Unit No. 41 now had a bank account. The follow-

ing March, 1952, a plant sale was held at the home of one of the members. Each of the members donated plants from her garden and was in turn propagator, saleswoman, and buyer. This sale netted \$60.00. Not long after the sale it was decided that each member would donate 25c each meeting as coffee money to increase the treasury. Since that time the principal source of income has been from the monthly donations and the small plant sale for the members each March. Books on native trees were sold to the members, giving a profit of \$5.00. In November, 1954, a talk given by Mr. Oliver Ester, landscape architect, resulted in donations of \$11.50 for the Arboretum.

From these seemingly small income sources Unit No. 41 has made a number of contributions to the Arboretum. In May, 1952, a check for \$65.00 was sent to the director, Mr. Mulligan, for grounds maintenance during the summer. In November, 1953, the first Vocatron inter-office communication system was purchased for \$66.63. This made communication possible between the director's office, the secretary's desk, and the greenhouses. In April, 1954, the unit purchased a second Vocatron set for the Arboretum Foundation office and Clubhouse.

The latest and largest unit contribution of \$90.00 was in January, 1955, for the purchase of a new 500-watt slide projector needed by the Arboretum for the frequent showings of slides to the various garden clubs and other meetings throughout the area.

The Frances Macbride Unit now has a membership of 45 interested women. The programs are interesting, varied and stimulating. Each member feels that she is contributing to the community by insuring it a place of beauty, of display and for study, such as is available only through an arboretum; to the Arboretum in assisting in the development and ultimate completion of its plans, and to each individual member by the inspiration and knowledge she is receiving from the Arboretum.

MRS. HARRY S. SLATER

ARBORETUM NOTEBOOK

This department is published for correspondence and pertinent comments by experienced growers on interesting plants and their culture. We solicit your questions but space limitation necessitates the publishing of only such answers as we deem of general interest.

When these pages went to press the Notebook Editor was delving into the beauties of the Hawaiian flora. We know you will be as glad as we to have her back with pen in hand again.

MARCH

There's work to be done and where shall we start? If we are going to see those sweeps of color in the garden as well as in our winter's dream, 'tis best we start planting. We could take the long-range approach and use flowering shrubs for those bright drifts. There is fun in growing annuals and perennials for a quick effect, but the flowering of a small-leaved rhododendron in its third year brings a sense of accomplished miracle that is hard to equal. And it is amazing the speed with which most trees and shrubs establish their individuality. It is an experience that is worth far more than the bit of effort involved, and there is a lasting quality that does not demand replanting every year or so.

The planting of a seed may be as simple or as complex as you wish. The seeding compost may serve its purpose in any container from a plastic refrigerator dish on the window sill, a paper or pane-covered flat in the cold-frame, to a clay pot in the most scientifically controlled greenhouse.

If you have never had the thrill of growing trees and shrubs from seed you are missing something choice.

Mr. Grant says the latter part of March is a good time to transplant broadleaved evergreens and conifers. There are some exceptions, including photinias, which start their spring's growth earlier in the season and should be moved before then.

APRIL

Life may not be a bowl of cherries in April but it is brightened by a cloud of blossoms from the genus of the same name. In the Arboretum office there is a leaflet, *Cherry Time*, which will help you to identify those

along Cherry Walk, extending "from the administration area at the north end to the foot of Rhododendron Glen."

This is an excellent time for planting heathers, according to many growers. Also a good time to trim the fall-blooming ones.

The yellow violets should be opening their sunny blooms, and if we are lucky we may hear "Three Blind Mice" sung in a minor key by the Golden-crowned sparrow. (We first heard his plaintive version of the old nursery rhyme coming from the branches of a flowering quince in our own garden, but we have seen and heard him in the Arboretum.) Treasure his song for he will stay only a few days before leaving for his summer home in the North.

MAY

Apple trees in bloom, warblers in migration, Russet-backed thrush whistling from the woodland, and rhododendrons! This is the month we would travel the coast highway to feast our souls on the rhododendrons and Oregon azaleas, but the spectacle of their cultivated relatives in the Arboretum is no second choice—it is that extra dividend awaiting those who take the time to visit the Glen in all its glory. And don't forget the Rhododendron Show from the 12th through the 15th of this month at the University stadium.

Conifers, if they must be shaped, may be trimmed as they start into the season's growth. And don't forget that this may be a dry month, so it pays to watch the soil around your shrubs, and water accordingly.

F. S. B.

1 1 1

The well-known legend of a woman's ingenuity with a hairpin is out of date—the bobby pin is not nearly so adaptable. But woman has not changed and her clever use of the wrong tool for the right job may frenzy her husband, and perhaps the tool manufacturer, but it still gets the work done.

One of our prolific propagators uses a common school pen for transplanting seedlings. The nib serves as a most efficient miniature trowel and the nether tip is used as a dibble.

The shears developed for thinning grape vines are perfect for pruning thin-branched shrubs, but reach the peak of their adaptability in flower-arranging where their long, curved blades maneuver in tight spots without disarranging a leaf.

The Gardening-Sage-of-the-Notebook says there is nothing like a linoleum knife for dividing plants. If your hellebores need separating, read Helen Ogden's suggestions for same, get yourself a linoleum knife, and fall to it.

Our-Gal-Gene adds her bit to this collection with the quip that a paperhanger's paste brush is the perfect answer for cleaning the potting bench between sessions.

Won't you write us a note about your favorite tool? That one you use as its designer never intended.

✓ ✓ ✓

A few notes on the division and propagation of *Helleborus niger* "Josephine Pacheu" growing in my garden since 1910 when the original root was brought from France.

In late March or early April when the flowers are gone and the foliage begins to die down the plant can be separated into crowns which can easily be seen. Dig carefully and deeply on the outside, thrust a very sharp narrow spade between the new crown and old plant so as to sever it as cleanly as possible. Lift out carefully and place the new plant at the same depth in a well-prepared spot to which a handful of bone meal has been added and water in well.

Sprinkle some bone meal in the hole from which the crown was taken and fill with soil. In one to two years new crowns will develop and the process can be repeated.

Sometimes in severing the crown single leaves with a node or eye break off. These may be planted in the same bed. In a few weeks, usually, they will be rooted and can be moved to a permanent location.

Seeds of this variety do not appear to

germinate. At least I have never found any seedling plants around my planting and have never been able to get germination from seeds I have collected.

These plants resent cultivation and prefer to be left alone. They do not seem to be affected by any disease. The ever-persistent slug feeds on the flower buds just as they emerge so heavy baiting at blooming time is essential.

HELEN R. OGDEN

(Mrs. Raymond D. Ogden)

✓ ✓ ✓

Green flowers were much in vogue in 1600 and our current interest in all green flowers only proves there is "nothing new in the world." *Ornithogalum nutans*, a choice bulb known in those times, is seldom seen in modern gardens. It has a charming, distinctive, silver-green blossom. It reminds one of a hyacinth in its manner of growth but with single blossoms more than twice the size of a hyacinth bloom. The little bells have a transparent, unreal appearance and each petal has a delicate green vein along the back. It grew happily in my garden and pushed itself down so deeply that one year when, to all appearances, the bulbs were completely removed and the bed deeply spaded, they appeared the next spring all through the area. Every April it caused much admiration and fascinated astonishment. These bulbs are especially suited for naturalizing under hazel bushes or *Garrya elliptica* shrubs whose greenish tassels appear at the same season.

G. T. D.

✓ ✓ ✓

BRYAN TAYLOR'S PLANTING FORMULA

Plant for a mass

Don't have a "Landscape's Mixture"

Plants have a herding instinct.

Make hole twice as large as plant's roots and twice as deep.

Mix peat and humus with topsoil.

Plant deciduous trees and shrubs from time they lose leaves to time they leaf out. EXCEPT magnolias and *Cornus florida* which are best moved in April or May.

Move evergreens, broadleaf or conifers from end of September to December. Then from February to May. Not during time when ground is frozen. Plant deciduous shrubs firmly. Don't

puddle. Anchor plant well in ground. Give roots a chance to re-establish themselves. Keep top growth alive. Trees must be staked for 2 years. In moving balled and burlapped evergreens, be very careful of ball. Firm ground around the ball. Tread until firm.

1 1 1

List of Plant Names

(Continued from Winter, 1954, Issue)

<i>pentaphyllus</i>	five-leaved
<i>pentapterus</i>	five-winged
<i>Pentapterygium</i>	Gr. five, and a small wing
<i>Peperomia</i>	Gr. pepper-like
<i>peramabile</i>	very lovely
<i>peramoenum</i>	very pleasing
<i>peregrinus</i>	exotic, foreign
<i>perennans</i>	perennial
<i>Pereskia</i>	for Nicolas de Pieresc, d. 1637
<i>Pereskiaopsis</i>	Pereskia-like
<i>perfoliatus</i>	perfoliate, with leaf surrounding the stem
<i>perforatus</i>	perforated, with holes
<i>pergracilis</i>	very slender
<i>Perilla</i>	a native name in India
<i>Periploca</i>	Gr. around, and to twine
<i>Peristeria</i>	Gr. dove, referring to flower
<i>Peristrophe</i>	Gr. peri, around and strophos, belt
<i>permixtus</i>	much mixed
<i>Pernettya</i>	for A. J. Pernetty, d. 1801
<i>Perovskia</i>	for V. A. Perovski
<i>Persea</i>	Ancient Gr. name for an Egyptian tree with sweet fruit
<i>persicifolius</i>	peach-leaved
<i>persicus</i>	of Persia, also the peach
<i>perspicuus</i>	clear, transparent
<i>perulatus</i>	pocket-like
<i>peruvianus</i>	Peruvian
<i>Pescatorea</i>	for M. Pescatore
<i>petaloides</i>	petal-like
<i>Petalostemon</i>	Gr. for petal and stamen
<i>Petasites</i>	Gr. a broad-brimmed hat
<i>petiolaris</i>	petioled
<i>Petiveria</i>	for James Petiver, d. 1718
<i>petraeus</i>	rock-loving
<i>Petrea</i>	for Robert James, Lord Petre, d. 1743
<i>Petrocallis</i>	Gr. rock beauty
<i>Petrocoptis</i>	Gr. to break the rock
<i>Petrophytum</i>	petros, rock and phytos, plant
<i>Petroselinum</i>	Gr. rock parsley
<i>Petteria</i>	for Franz Petter, a Dalmatian botanist, d. 1853
<i>Petunia</i>	Brazilian name for tobacco, a near relative
<i>Peucedanum</i>	Ancient Gr. name
<i>Peumus</i>	Chilean name
<i>Phacelia</i>	Gr. cluster
<i>Phaedranthus</i>	Gr. gay flower
<i>phaeocarpus</i>	dark-fruited
<i>phaeus</i>	dusky
<i>Phaius</i>	Gr. dark
<i>Phalaenopsis</i>	Gr. moth-like
<i>Phalaris</i>	old Gr. name for grass
<i>Phaseolus</i>	ancient Gr. name
<i>Phellodendron</i>	Gr. for cork tree
<i>philadelphicus</i>	of the Philadelphia region
<i>Philadelphus</i>	Gr. brotherly love
<i>Philesia</i>	from Gr. to love

<i>Philibertia</i>	for J. C. Philibert
<i>phillyraeoides</i>	phillyrea-like
<i>Phillyrea</i>	ancient Gr. name
<i>Philodendron</i>	Gr. compound for tree-loving
<i>Phleum</i>	old Gr. name for a kind of reed
<i>phlogifolius</i>	phlox-leaved
<i>Phlomis</i>	old Gr. name
<i>Phlox</i>	Gr. for flame
<i>phoeniceus</i>	purple-red
<i>phoenicolasius</i>	purple-haired
<i>Phoenix</i>	Theophrastus' name for date palm
<i>Pholidota</i>	Gr. scale and ear
<i>Phormium</i>	Gr. basket
<i>Photinia</i>	Gr. shining, referring to foliage
<i>Phragmites</i>	Gr. fence or screen
<i>phrygius</i>	of Phrygia, Asia Minor
<i>Phygelius</i>	Gr. sun flight
<i>Phylca</i>	old Gr. leafy
<i>phyllanthoides</i>	phyllanthus-like
<i>Phyllanthus</i>	Gr. for leaf-flower
<i>Phyllitis</i>	Gr. a leaf
<i>Phyllocladus</i>	Gr. leaf branch
<i>Phyllodoce</i>	for Phyllodoce, a nymph running madly to leaves
<i>phyllomaniacus</i>	long-lipped
<i>phymatochilus</i>	Gr. bladder
<i>Physalis</i>	Gr. bladder and fruit
<i>Physocarpus</i>	Gr. bladder and covering
<i>Physostegia</i>	Gr. ivory plant
<i>Phytelephas</i>	old Gr. name "a plant"
<i>Phyteuma</i>	hybrid name, Gr. plant and French lake
<i>Phytolacca</i>	phytolacca-like
<i>phytolaccoides</i>	ancient Lat. name, from pix, pitch
<i>Picea</i>	pitch
<i>picturatus</i>	pictured, variegated
<i>pictus</i>	painted
<i>Pieris</i>	a mythological name
<i>Pilea</i>	a Roman cap
<i>pileatus</i>	with a cap
<i>pilifera</i>	bearing soft hairs
<i>pilosiusculus</i>	slightly pilose
<i>pilosus, pilose</i>	shaggy, with soft hairs
<i>pilularis</i>	fruit globular
<i>pilulifera</i>	globule-bearing
<i>Pimelea</i>	Gr. fat, referring to fleshy seeds
<i>pimeleoides</i>	Pimelea-like
<i>Pimenta</i>	Spanish allspice
<i>Pimpinella</i>	Lat. meaning bi-pinnate
<i>pimpinellifolius</i>	Pimpinella-leaved
<i>pinetorum</i>	of the pine forests
<i>pineus</i>	of the pine
<i>Pinguicula</i>	diminutive of Lat. pinguis, fat
<i>pinguifolius</i>	fat-leaved
<i>pinifolius</i>	pine-leaved
<i>pinnatifolius</i>	pinnately-cut leaves
<i>pinnatifrons</i>	pinnate-fronded
<i>pinnatinervis</i>	pinnate-nerved
<i>pinnatus</i>	pinnate
<i>Pinus</i>	ancient Latin name
<i>Piper</i>	ancient Latin name
<i>piperita</i>	peppermint scented
<i>Piptadenia</i>	Gr. falling gland, referring to stamens
<i>Piptanthus</i>	Gr. to fall and a flower
<i>Piqueria</i>	for A. Piquer, Spanish physician
<i>pisifera</i>	pea bearing

(Continued on Page 36)

BOOK REVIEWS

Garden Design Illustrated. By John A. and Carol L. Grant, University of Washington Press, Seattle, Wash. (1954). Price \$5.75.

IT IS important that we keep in mind that the purpose of this book is to set forth *one* concept of an approach to landscape planting. In so doing, both the amateur and professional gardener and/or designer will find it an interesting and valuable reference. The Grants have been close observers of nature's plan and, in turn, have given us much valuable material pertaining to our plants of the Northwest.

The authors acknowledge the importance of developing the site as a whole when they state: "It has been shown in architecture that the most frankly appealing house is produced when the building is a logical outgrowth of the site, locality, function and well used native and imported materials."

In this book they have pointed out the necessity for recognizing not only the homogeneity of these plants, but also their structural characteristics—which can be considered a valuable design element. They have written it for people who love plants. They have set forth principles to achieve a given effect and hasten to caution that each garden expresses an individual idea. We should not attempt to copy their picture but should adapt the principles to our own conditions if we find the effect pleasing.

The illustrations are of rather impressive properties and, for this, criticism has been voiced. The thought being expressed is that the ideas are not applicable to small city lots. Naturally, the owner of a small lot cannot think in terms of large drifts of heather nor massive trees—which merely reiterates what the Grants themselves say regarding thoughtful consideration to scale.

The book is not a complete study of landscape architecture and I do not feel this was the aim of the authors. To me, their objective was to convey *their* ideas of planting and whether all agree with them is immaterial. The important point is to determine whether we like the effect gained by the practice of these principles. The book should be studied carefully, analyzing existing conditions before formulating a program based on their ideas.

GLEN HUNT

Hardy Hybrid Rhododendrons. By F. Street. Collins, London (1954). Price \$3.60.

IN that period of rhododendron history between 1820 and 1900, a race of hardy hybrid rhododendrons was developed by the English and the Dutch that is still widely grown and admired to this day. The origin of these trouble-free, beautiful garden plants that have stood the test of time so well is for the most part shrouded in mystery. The work of the early hybridizers was done in great secrecy. They left very few if any records. Mr. Frederick Street of the English firm of Heathermead Nursery, West End, North Woking, has attempted to unravel some of the mystery. In his book, *Hardy Rhododendrons*, he not only tells of the early history of rhododendrons, but also writes in an interesting manner of the new ones as well. The rho-

dodendron nursery business of the Street family was founded by Mr. Street's grandfather in 1869. The firm has been carried on by various members of the Street family to this date. Mr. Street served his apprenticeship as a nurseryman from 1932 to 1939 with several of the largest rhododendron growing firms in England, including John Waterer, Sons and Crisp of Bagshot. Through his acquaintance and friendship with the old-time nursery foremen, such as the late Walter Harding and George Berry, he learned the tricks of the trade, which were otherwise closely guarded secrets.

Delving into the past of the hardy hybrid rhododendrons, Frederick Street speaks of the "far distant days when Veitch's foremen wore top-hats and frock coats in the afternoons in order to be more suitably dressed to receive customers; the breeding of a plant or race of plants was a most secret matter." Legend and theory and lack of real fact played the major role from the early days of Queen Victoria's reign to as late as 1900, baffling later hybridizers who would have liked to learn their technique. Very few written records of the work of these men have come to light. Apparently the breeding program was not haphazard and not without plan, as the development of plants can be traced and a definite plan can be seen.

The rhododendron species available prior to 1860 were rather limited. The principal species were *arboreum*, *campanulatum*, *catawbiense*, *caucasicum*, *maximum* and *ponticum*. Hybrids produced from these in the period between 1820 and 1860 were:

caucasicum pictum
Bodartianum
fastuosum flore pleno
 Kate Waterer
 Michael Waterer
 Lady Eleanor Cathcart
 Chionoides
 Garibaldi
 John Waterer

These formed the nucleus for further development. Interbreeding and backcrossing with the original species produced:

Mrs. R. S. Holford
 Chevalier Felix de Sauvage
 Gomer Waterer
 Lady Grey Egerton
 Duchess of Teck
 Cynthia
 Lady C. Mitford
 Concessum's Master
 John Walter
 Lord Roberts

With the introduction of the half hardy species *R. Griffithianum* in 1880 an important milestone was reached. By crossing the old hybrids with this lovely but tender species, Pink Pearl and Mrs. E. C. Sterling were the outstanding examples. Pink Pearl marked the turning point. Other successful early parents were *R. Fortunei* and *R. Thomsonii*, but Pink Pearl reigned supreme up to 1914 and still is a favorite hybrid today. This famous rhododendron came from the Bagshot Nursery of John Waterer, Jr. The parentage has not been clearly defined. Millais

gives it as "George Hardy" x "Cynthia," but from the notes given to Frederick Street by Donald Waterer, the cross was "George Hardy" x *Broughtonii*.

Mr. Street is of the opinion that the hardy hybrid rhododendron is superior to any of the species and he makes a comparison with Captain Kingdon-Ward's book *Rhododendrons* in which Kingdon-Ward shows his strong preference for species.

Frederick Street explains his stand on hybrids by the following points:

1. The best species are tender.
2. The best hybrids are not.
3. The best species need perfect conditions.
4. The best hybrids do not.
5. Because of (1) and the lack of (3) the best species often look poor, miserable, thin, bedraggled, half starved, half dead, dried up, ill furnished and badly clothed.
6. Because of (2) and because (4) the best hardy hybrids look fat, well, luxurious, full of life and covered with rich foliage. There is as much difference between the two as between the clothing of Count D'Orsay and Mahatma Gandhi.
7. A hybrid will flower younger.
8. It will flower regularly year after year.
9. It will flower more freely and with larger flowers.

In my judgment, Mr. Street has gone much too far in his criticism of the species. There are many fine ones, including our own native *R. macrophyllum* (Californicum). Of course, in combining only the best qualities of three, four or more species, a good hybrid would be better, but that is not the result of a single cross. It is a matter of selection and back crossing and requires many years to attain the qualities desired in a hybrid. To this extent Mr. Street is right. He admits, however, that he is somewhat prejudiced in his fondness for the hardy hybrids.

The family of Waterer, formerly of Bagshot, and later of Knaphill, was held in very high regard by the Streets for many years. G. Donald Waterer and Frederick Street are the last male members of these two families. Gomer Waterer produced between 1900 and 1939 such fine and well-known rhododendrons as Alice, Blue Peter, Corona, Elsa Crisp, Eileen, Mars, Princess Elizabeth, Starfish, Pygmalion and Sweet Simplicity. This is an amazing record of development unexcelled to this date.

Two other prominent English hybridizers of the old school are Faggetter from Goldsworth Nursery and Harry White of the Sunningdale Nurseries. Faggetter did fine work for Walter Slocock with yellow rhododendrons, the best of which is Goldsworth Yellow, a cross between *R. caucasicum* and *R. campylocarpum*. Harry White's most outstanding variety was Countess of Derby, the parents of which were Pink Pearl and Cynthia.

The Dutch were also responsible for some fine additions to the hardy hybrids. Due to the severe winter climate in Holland, the varieties developed there were, as a rule, fully hardy. The Dutch, like the early English nurserymen, were also very secretive of their developments and little has come to light of the origin of many of the best plants. This unwillingness to disclose the parentage of their introductions is carried on to the present day.

Foremost among the Dutch originators was L. J. Endtz of Boskoop, who later sold out his seedlings to C. B. Van Nes. The best of this batch of seedlings, composed of a cross between *R. Griffithianum* and some of the old hybrids, was crossed onto a hardier strain by C. B. Van Nes and produced among others Queen Wilhelmina. This in turn was used as one of the parents of Britannia, the other parent given was Stanley Davis, a rather involved and complicated affair. Britannia is considered to be the most successful red hybrid spanning the years from 1918 to the present. Other notable rhododendrons introduced to the trade about the same time as Britannia from the C. B. Van Nes Nursery were Unknown Warrior, Armistice Day, Earl of Athlone and Langley Park. Van Nes Sensation, a fragrant white, was a later development, having the species *R. Fortunei* as one of the parents.

M. Koster and Sons, also of Boskoop, Holland, produced many desirable varieties, using the very hardy old hybrid George Hardy with some of the newer red hybrids to obtain Peter Koster, Madame de Bruin, Mrs. Charles Pearson, Marinus Koster, Mrs. G. W. Leak, Hugh Wormald and Mrs. Lindsay Smith. Others developed by this firm that are very popular today are Betty Wormald and Corry Koster.

Frederick Street describes the origin of many more noteworthy hybrids and their originators of bygone days in his entertaining manner. In describing these he concludes with the statement, "Although I have tried to infuse the human aspect into the story, I know that I have failed to convey the excitement, the rivalry, the hours of work, the years of patience, the skill and knowledge, the many failures for one success that have been the background to the production of the many fine varieties so widely grown today."

From the old and very old hybrid rhododendrons, Mr. Street progresses on to the very new ones. He points out the fact that, due to the slow process of propagation, a new rhododendron may be classed as new for actually as much as thirty years after introduction. So, in describing the very new that are, or soon will be available, he considers only those introduced no earlier than 1935.

Most recent of the Dutch nurserymen to produce new varieties is Anthony Kluis, Boskoop, Holland. The variety Kluis Sensation is really outstanding and considered to be an improvement over Britannia with a similar scarlet color. Kluis Triumph is dark red in color and is another superior hybrid. Both are thought to have Mrs. R. S. Holford as one of its parents. A new variety, also of Dutch origin, that has attracted a good deal of attention is El Alamein, a blood red somewhat like Earl of Athlone, but later flowering and more hardy. Spitfire is of similar color, but blooms two or three weeks later. General Eisenhower is a cherry red with attractive frilled flowers borne on immense trusses. No indication has been given by the Dutch as to the parentage of these varieties.

From Great Britain come several good orange-scarlet Griersonianum hybrids—Cavalcade, Bonfire and Vulcan. The pale yellow China is a first cross between the species *R. Wightii* and *R. Fortunei*. There are many more that fall into the very new class that are splendid plants that

come from England. One of my favorites is the dwarf Elizabeth (*R. Griersonianum* x *R. repens*) raised by the late Lord Aberconway in 1939.

Frederick Street, when asked to name the one variety that he preferred above all others, named Betty Wormald as his choice. He also gives his first choice in the various color categories as follows:

Red—Britannia
White—Chionoides
Pink—Betty Wormald
Mauve—*fastuosum flore pleno*
Purple—Purple Splendor
Yellow—Goldsworth Yellow

You will note that they are all in the old hardy hybrid class. Mr. Street admits that there are finer rhododendrons in the new varieties, but that they have not as yet weathered the test of time. Also many of the new ones are not as yet generally available. They are, however, usually available to those who take the trouble to run them down.

A valuable contribution in the book is a classified list of select varieties covering the Award of Merit, or First Class Certificate awards. Detail and quality of flower, color, size rating of flower and truss, foliage rating, flower period and capacity, hardiness rating of bud, flower, wood and foliage, rate of growth, habit, constitution, remarks and author's rating. This list covers 191 of both the old and new varieties. Such a framework for rating and scoring would be valuable for other rhododendrons.

The second half of the book is devoted to the following chapters: (1) Soil and its preparation, including manures and fertilizers; (2) Planting and choice of plants (3) Planting arrangement; (4) Care and attention, including mulching, feeding and pruning; (5) Pests and diseases; (6) A special form of culture; (7) Propagation.

Many unusual hints and much valuable information on culture are included in the material. The simplified explanations would enable the average layman to successfully grow rhododendrons where there is a lime-free soil and reasonable drainage. With apologies to Mr. Street, I should like to conclude with the thought: Where can these plants, the choicest of all evergreen flowering shrubs, be better grown with as little effort, as right here in our own Pacific Northwest?

HARRY R. MADISON

Soil, by G. V. Jacks. The Philosophical Library, Inc., New York (1954). Price \$5.00.

THE author is the director of the Commonwealth Bureau of Soil Science, Rothamsted, England. Therefore, most of the soils data presented and examples discussed are about British soils. The stated purpose is to give the farmer, student of agriculture and all who realize the importance of cultivation an insight into soil management. This purpose is brought into sharp focus in the final chapter with a discussion of the history of British soils. The author describes the conversion from native vegetation to producing agricultural soils and the many management problems involved. Of particular interest to Western Washington readers is the comparison of soils under forest and under grass and their reaction to cultivation. The generalities of this section are true, even though his

description of forest soils does not apply to most of our land.

This book is in one sense a philosophical discussion of soils and man's relation to the soil. The writing is in simple form as illustrated by the definition of soil—"Soil is what plants grow in." Despite this simplicity the book is accurate in the presentation of general soil principles as they are known today.

Mr. Jacks presents such diverse subjects as soil-water relations, soil chemistry and plant nutrition, soil physical properties and soil biology and organic matter in an interesting and informative manner. The living and changing nature of the soil is adequately explained. He continually emphasizes the need for good soil structure to maintain a proper environment for plant growth.

His chapter on cultivation is a good historical review of man's effort to till the soil. He also presents the modern thought for and against intensive cultivation.

The book is illustrated with good black and white photos as well as several color plates. Complicated graphs or charts are not included.

As a good general easy-to-read book on soils and soil problems related to cultivation, this book has much to recommend it. It is not a technical discussion, but it does present much essential material on soils. Certainly all gardeners interested in the medium in which their plants grow will find this book stimulating.

S. P. GESSEL

The Trees and Shrubs of the Southwestern Deserts, by Lyman Benson and Robert A. Darrow. Published jointly by the University of Arizona Press, Tucson, Ariz., and the University of New Mexico Press, Albuquerque, N. M. Price \$8.50.

THE new edition of this well-known manual on the woody vegetation of Southwest deserts has much to commend it, even though its content has not changed significantly. Whereas the first edition was paper-bound (our copy, at least) and the typography and printing only fair, the second edition is handsomely bound and typographically vastly improved.

For those who do not know the book from its first printing, a few of its outstanding points might be enumerated. Benson and Darrow, both professional botanists with long-standing interests in desert plant life, ably blend the popular and scientific approaches in this manual. A "short-course" in plant identification in the introduction quickly puts the amateur on an equal footing with the professional botanist. The well-prepared though somewhat lengthy keys to families, genera and species should offer no great obstacles to the beginner. Moreover, the many illustrations, some in excellent color, increase the success with which one could use the book in "botanizing" the woody plants of our Southwestern deserts.

The main body of the text is devoted to the taxonomic treatment of the vegetation in question which follows the standard Engler and Prantl sequence of angiosperm families. Following many of the species descriptions are interesting and often entertaining tidbits on a particular plant's place in Southwest Indian folklore, its value as a forage or browse plant as well as other notes with a natural history

flavor. Finally, the specialist will find the book meeting his more specific demands as a useful regional flora with other noteworthy features such as the introductory essay on Vegetation Types, the frequent use of vegetation maps, as well as the complete list of synonymy and type collections that makes up the Appendix.

A. R. KRUCKEBERG

The Pruning Manual, by Everett P. Christopher. The Macmillan Co., New York (1954). Price, \$5.00.

CONSPICUOUS in winter are the bare branches of deciduous shrubs and trees. What do you think of first?

The fruit grower visualizes his trees with luscious fruit following the spring blossoms. The flower grower is impatient for the first bursting buds—even forces a few budding branches in his warm house.

The thinking gardener dwells on the structure of his shrubs and trees and his New Year's resolutions usually include certain plans for training his plants in the way they should grow.

The new gardener is overwhelmed with advice. Prune heavily! Never prune! Prune for fruit! Never touch a cherry tree! Prune in summer only! Only prune when the wood is dormant! What is he to do?

The secrets of putting apples on apple trees and lots of flowers on the flowering trees, graceful growth on woody plants, and keeping plants within their confines were all first corralled on paper by Liberty Hyde Bailey, the famous world-wide garden authority. Nothing that has been written in the last fifty years is more comprehensive or durable than his original *Pruning Manual*. But times have changed. So have gardens and the use people make of them—the time they have to garden, and the gardeners they can no longer hire. So it was felt a new edition of the *Manual* should be published and Dr. Everett P. Christopher of the University of Rhode Island has written a modern comprehensive *Pruning Manual* to succeed Dr. Bailey's.

So many things which the old-time green thumb gardener instinctively knew but did not understand have come to light with modern scientific investigation of plant growth. Things like the amount of light necessary to put fruit on trees and flowers on shrubs—even the amount of light necessary to produce strong branches. Or the influence of the nutritional condition of the plant as related to the production of flower buds and the effect of pruning at different times of the year. The use of new materials to delay the dropping of fruit until fully ripe, or the falling of berries from holly and other ornamentals.

The new *Pruning Manual* is a must for the gardener's library, whether he is interested in pruning his first rose bush or training his first grapevine. The seasoned gardener will find a wealth of new and interesting ideas about a familiar subject.

The book and its many illustrations clearly and simply explain the difference between pruning and training, the methods of repairing damaged trees, techniques of grafting, ways of protecting trees and shrubs when the surrounding land must be raised or lowered, methods of transplanting large shrubs, pruning to produce the maximum amount of fruit, or to limit size,

or for increased vigor—in fact, just about any question which could be asked about the whole subject of pruning, training and the general discipline of woody plants, from the smallest bush to the tallest tree.

This is a necessary book for your library.

JEAN NIEMEIER

The Rhododendron and Camellia Yearbook 1955. Published by The Royal Horticultural Society, Vincent Square, London, S.W. 1. Price, \$1.65 including postage.

THIS new R.H.S. yearbook is the second issue combining rhododendrons with camellias and, while some rhododendron enthusiasts may look askance on this combination, it is, in a broad sense, a logical thing. The two genera are so closely related in garden usage that few gardeners would be without either. This edition is, as usual, complete with splendid pictures and useful information.

If any criticism could be made it is that so many of the articles are descriptive of large gardens which so few people can enjoy except vicariously. It is nice, however, to read of them and dream of what we might do if we had the space and the money for maintenance. Even without these there are many suggestions on plant association and arrangement which can be useful in a small garden, as well as a knowledge of eventual size of plants and what not to do in placing specimen plants where they will out-grow their space.

The Pacific Northwest is well represented in pictures as well as an exceptionally well-written report of the 1954 Seattle Rhododendron Show, the Tacoma Show and an article on the geographical distribution of *Azalea occidentalis*.

The wide range of interest in these plants is evidenced in the report of the New Zealand Rhododendron Association on its activities and programs over the past decade.

In the camellia articles there is much on our old favorite forms of *C. japonica*, but many of us have felt that already this assortment was so wide that selection was only a matter of choice. However, the new crosses of *C. saluenensis* develop an intriguing picture. Already I have seen one of them, "Mary Christian," and if this is a fair example there must be many others of equal beauty in the *C. Williamsii* group. There are also the "Borde Hill" hybrids of *C. saluenensis* and *C. reticulata*. The Yearbook should be a good guide in buying these.

The ancestry of the modern deciduous azaleas is so tangled and interwoven with names in commercial use that it is hopeless confusion to the average gardener. Here is a manuscript on their evolution and range which will be helpful in understanding these many variations. It also emphasizes the important developments in the Exbury and Knaphill groups from which many beautiful plants have come in recent years.

Rhododendrons are well covered in the commentaries on the gardens of Leonardslee and Colonsay which include many fine specimens of both hybrids and species. Also those on the English Show, the records of awards of the year and the names of new hybrids registered. Special note should be made of the information furnished by Mr. Cox on "Lime Induced Chlorosis in Rhododendrons" and further experi-

ments might well be made in America. If successful this would greatly extend the areas in which rhododendrons could be successfully grown. What wouldn't our friends who live in alkaline soil areas give to be able to grow some of our choice plants.

Noticeable to the Northwest gardener is the emphasis in articles, in pictures and in the English Show which was placed on large-leaved varieties such as the *Falconeri* and *Grande* series. This same emphasis was noted in the pictures which Mr. Cox displayed in Seattle. As such displays can only be obtained after plants have reached a mature age our lack of appreciation of these splendid things may come from the fact that ours have not reached the age for free flowering and we may not know this beauty for another twenty-five years or thereabouts, if then. A dismal prospect, I will admit, but some of mine nearly thirty years old only have an occasional flower.

HERBERT G. IHRIG

The Lily Yearbook, 1955. Published by the Royal Horticultural Society, London, (Nov., 1954). Price, \$1.65, including postage.

THE novice and the advanced lily grower alike will profit by reading this volume. The many how-to-grow articles indicate that the lily growers in England are constantly seeking optimum conditions for their bulbs. "When and Where to Plant Lilies in an Average Garden," by F. J. Rose, is one of the illuminating articles. That the British growers have excellent success with their lilies is borne out by the twenty-four illustrations of flowering specimens and by the account of the co-operative exhibit by the lily group of the R. H. S.

One is pleased to meet in this volume many of the good writers on lilies, both English and American. Appreciative remarks on the late W. A. Constable, to whom the book is dedicated, and on Mr. Walter Bentley, formerly of Quarry Wood, remind one sadly that these two lily growers will be heard no more. The three discussions by the Lily Group which are recorded verbatim make excellent reading.

Three articles deal with North American lilies. Mary G. Henry, Gladwyne, Pa., discusses the collecting of the eastern North American native species. Dr. A. M. Vollmer of San Francisco fills out the picture with "Hunting Lilies in California," and the group discussion led most ably by Miss Ellen K. Field, former gardener for Mr. Bentley, is excellent on the performance of North American lilies in English gardens.

The other outstanding contribution of this volume is the report by F. Kingdon-Ward, plant explorer and discoverer of *L. Wardii* and *L. Mackliniae*, on his finding of the new epiphytic lily, *L. arboricola*, in Burma. It was found on a blown-down tree growing amid orchids and creepers. The white bulb was carried to the base camp and planted in a tree stump. On the 19th of August a light nile green bloom appeared with brick red pollen and of delicious fragrance. Others were subsequently found growing on trees; seeds and bulbs were flown to England, where they have grown well and bloomed in half peat and half compost. Figure 12, opposite Page 41, shows this rare lily, the first of an epiphytic type to be discovered.

DOROTHY M. PERRIN

The American Camellia Yearbook, 1954. Edited for the American Camellia Society by Arthur C. Brown.

THE American Camellia Society, with headquarters at Gainesville, Fla., has just issued its 1954 Yearbook. It is an outstanding volume comparing favorably in number of articles, variety of subjects and matters of general interest to camellia growers with any of the very fine yearbooks previously issued.

The volume is dedicated to Calder W. Seibels, who is president of the society and whose genial countenance has the place of honor as frontispiece. The foreword says of him: "He is a charter member of the South Carolina Camellia Society and is a former president of the organization. He initiated and has since served as editor of *The Quarterly Bulletin* and has made that publication a reliable source of information to those interested in planting and culture of camellias."

The Yearbook divides into four parts, the first dealing with pests and diseases. The short-tailed pine mice are a pest and a nuisance, tunneling under ground, as does the mole, destroying roots and girdling the bark at ground level, not only of camellias but other trees and shrubs.

Much greater damage is done by the camellia flower blight. *Salt on the Dragon's Tail* by Aubrey C. Harris of Shreveport, La., discusses this problem and relates what is being done in his section to effect a remedy. Arthur C. Brown discusses the same subject very thoroughly and efficiently. Several other articles on this deal with the causes and remedies from a scientific point of view.

The next section takes up "General Culture" in which such topics as Greenhouse Management, Lath Houses for Amateurs, Growing Camellias in Containers, Fertilizers, Understanding Trace Elements, etc., are covered.

In an article, "The Plant No One Knows," Claude Chidamian discusses a phase of camellia growing we are all apt to overlook. We are apt to admire the form and color of the blossom with small regard for the beauty and usefulness of the shrub itself.

The third section, "Planting and Gardens," includes an outstanding travel article by Ralph Peer of Los Angeles entitled "Camellia Path Around the World." His name is well known to readers of the Camellia Yearbooks. Flying from New York to London, stopping in European and Asiatic countries, to Australia, New Zealand and way points, he spent a month in Japan visiting famous gardens, meeting growers and creating an atmosphere of good will wherever he went.

The Pacific Northwest is represented by an article by Helen G. Buzard entitled "Camellias in the State of Washington." A happier choice in the presentation of this subject could not be found. It is interestingly written, comprehensive in scope and a thoroughly informative account of camellia growing in this district. A black and white picture of camellias in the University of Washington Arboretum is included in this excellent article.

A report by W. E. Lammerts on his "Hybridization Experiments With the Kunming *Camellia reticulata* Hybrids" is continued from previous articles and is interesting to follow.

The last section is taken up with accounts of

shows and awards and the last article is a list of all camellia varieties registered with the Camellia Society. Over two hundred varieties of *C. japonica* are listed with registration numbers and descriptions. Lists will continue to be published in the *Quarterly* that are registered between publication of yearbooks.

The final number is a facetious article on the pronunciation of some of the names that baffle the majority of growers, "Ah Nomenclature! Ah Pshaw!" by the able executive secretary, Sam P. Harn. Then follows the list of members, which is largely concentrated in the South-eastern states, while the largest foreign membership is in England, Australia and New Zealand.

Membership in the American Camellia Society includes the bound Yearbook and the four quarterlies at the price of \$5.00 for annual members, \$10.00 for sustaining members. Communications should be addressed to Sam P. Harn, secretary, Box 2398, University Station, Gainesville, Fla.

MRS. O. B. THORGRIMSON

✓ ✓ ✓

Meconopsis

(Continued from Page 2)

M. latifolia; this is a much more bristly plant with a number of medium-sized flowers carried on a spike up to three feet; the color is what we call Cambridge blue. It grows well in the Royal Botanic Garden at Edinburgh and seeds itself in the paths and anywhere where the ground is hard, but in other places, including my garden, it refuses to grow.

M. quintuplinervia; Farrer's Harebell Poppy. This has nodding flowers, like an enlarged Harebell, carried on a nine-inch stem, of a rather indeterminate lavender-blue or light purple. It is very perennial and very free-flowering, but there are plants of a more striking color and appearance, although it is much beloved by many gardeners. From western China and northeastern Tibet.

M. villosa; this formerly was called *Cathcartia villosa*, but is now included in *Mecconopsis*. In this the leaves are heavily lobed and are almost as broad as they are long, about four-five inches. The yellow flowers are carried on long pedicels in the axils of the upper leaves. We once had a clump of this plant that carried about 15 flower stems each with four or five flowers. We are very fond of it, but it must have more or less woodland conditions with a little more than half shade. Although perennial, it is as well to keep a fresh stock coming on, as it is a plant of un-

certain temper. It sets seed freely. From Bhutan and the eastern Himalayas.

Cultivation

Seeds are sown early in spring under very similar conditions to Rhododendrons, but it is as well to grow them on quickly when very small as they are more liable to damp off if grown slowly. Seed germinates very rapidly, if at all. Pricking off should be done at an early stage and room must be given for expansion, as these soft leaves are often attacked by *Botrytis* if they are grown too close together. Allow plenty of air at all times, but not too much sun.

Your difficulty will be to keep them moist and growing during summer. We like to keep them in flats or boxes for six months or more and plant them out in the early spring of the second year. During this second year we usually remove any flower buds that appear and as early as possible, as plants flowering in the third year are much better than those flowering the second year. Also, with perennial species that perpetuate themselves by sending out offsets, it is essential that flower buds be removed during the first year, otherwise it will act as a monocarpic plant if no side shoots are produced. The tall growing biennials may be grown in a herbaceous border, but normally they all like woodland conditions. *Betonica*-*folia*, *grandis* and Sherriff 600 will stand more sun, but with you I should say that half-shade would be the maximum amount of sunshine.

All perennial species can be divided. We prefer spring division, but with your hotter summers, I would suggest dividing as soon as the rains come in fall. In all cases their well-being will be enhanced if all dead and dying foliage is removed as early as possible. I have not heard of them suffering from insect pests, but they are all liable to what we call crown-rot.

✓ ✓ ✓

God does not send us strange flowers every year,

When spring winds blow o'er the pleasant places,

The same dear things lift the same fair faces,
The violet is here.

MRS. WHITNEY

The Drug Plant Gardens and Laboratory, University of Washington

(Continued from Page 15)

Milton Bakke, serves as a full-time nurseryman and general technician. He has been responsible for many improvements in the form of modified equipment, its repair and techniques of soil and hydroponic (nutrient) cultures that are used in both routine activities and research. He has been with the gardens since 1946. Mr. Martin Giacolino, a recent addition to the staff, serves as a part-time gardener.

Thus it is that the University, with considerable foresight more than 43 years ago, recognized the services of a medicinal plant garden. As a result of this and with the efforts of the College of Pharmacy faculty, particularly in later years by the encouragement of Dean Forest J. Goodrich, the garden and laboratory have contributed vigorously to a knowledge of drug plant culture and chemistry. Its use has been enjoyed by persons in areas throughout the world and its services to teachers, students and garden enthusiasts have been many.

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Japanese Gardens—A Layman's Observations

(Continued from Page 4)

only in touching one phase of the problem. Perhaps we may never understand the secret strangeness of this beauty in its entirety because the Japanese thinking and approach is so different from our own. But if these suggestions stimulate further thought and study we will become better acquainted with Japanese gardens and have a greater sense of appreciation. Even if we cannot understand them we know that here is reality, here is something—to paraphrase D. H. Lawrence—that we feel . . . a communicated sense of beauty.

1 1 1

May I Present the Camellias, Grand Troupers

(Continued from Page 11)

in Georgia, was named for Benjamin Franklin in 1785. Reputed to be a delightful small tree in the south, its greatest attribute for us is the brilliant late fall color of its rather large, thin foliage. The white blossoms come so late they are frequently damaged by frost.

From October to October, on stage or off, you may meet this galaxy of stars, members of a most interesting family. Theirs is an almost continuous performance. As one bows off-stage another makes its entree. Planted in close proximity, as they are at the University Arboretum, you may enjoy them throughout their memorable show.

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Photinia *Notes on the Species*

(Continued from Page 7)

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* * *

The Amateur Gardeners will hold their 1955 Camellia Show, "It's Camellia Time," April 23 and 24 in the Arboretum Clubhouse, with hours from 2:00 p. m. to 7:00 p. m. the first day and 10:00 a. m. to 7:00 p. m. the second. The public is cordially invited—admission 50 cents. All proceeds will go toward the upkeep of the Amateur Gardeners' sponsored project in the Arboretum, "The Mary E. Williams Camellia Garden."

* * *

If you are interested in the tree peonies you should see the finely illustrated January, 1955, issue of the quarterly *National Horticultural Magazine*, entirely devoted to these lovely shrubs. Available in the Arboretum office.

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List of Plant Names

(Continued from Page 25)

<i>pisocarpus</i>	pea-fruited	<i>polifolius</i>	polium-leaved
<i>Pistacia</i>	ancient Gr. name	<i>politus</i>	polished
<i>Pistia</i>	Gr. pistos, watery	<i>polyacanthus</i>	many-spined
<i>Pisum</i>	Gr. and Lat. name for pea	<i>polyandrus</i>	with many stamens
<i>Pitcairnia</i>	for W. Pitcairn, a London physician, d. 1791	<i>polyanthemus</i>	many-flowered
<i>Pittosporum</i>	Gr. pitch seed, referring to resinous coating	<i>polybulbon</i>	with many bulbs
<i>placatus</i>	quiet, calm	<i>polycarpus</i>	many-fruited
<i>Planera</i>	for J. J. Planer, German botanist, d. 1789	<i>polycephalus</i>	many-headed
<i>planiflorus</i>	flat-flowered	<i>polychromus</i>	many-colored
<i>planifolius</i>	flat-leaved	<i>polydactylus</i>	many-fingered
<i>planipes</i>	flat-footed, or stalked	<i>Polygala</i>	Gr. much milk
<i>plantagineus</i>	plantain-like	<i>polygaloides</i>	polygala-like
<i>Plantago</i>	Latin name	<i>polygamus</i>	sexes mixed
<i>planus</i>	plane, flat	<i>Polygonatum</i>	Gr. many knees
<i>platanifolius</i>	platanus-leaved	<i>Polygonum</i>	Gr. many-jointed
<i>platanthus</i>	broad-flowered	<i>polylepis</i>	many scales
<i>Platanus</i>	ancient Gr. name, from platys, broad	<i>polylophus</i>	many-crested
<i>platyacanthus</i>	broad-spined	<i>polymorphus</i>	of many forms, variable
<i>Platycarya</i>	Gr. for broad and nut	<i>polypetalus</i>	many-petaled
<i>platycarpus</i>	broad-fruited	<i>polyphyllus</i>	many-leaved
<i>platycaulon</i>	broad-stemmed	<i>polyrrhizus</i>	many-rooted
<i>Platycerium</i>	Gr. broad horn	<i>Polypodium</i>	Gr. many feet
<i>Platycodon</i>	Gr. broad and bell	<i>Polypteris</i>	many-winged or feathered
<i>platyglossus</i>	broad-tongued	<i>polysepalus</i>	many-sepaled
<i>platypetalus</i>	broad-petaled	<i>polyspermus</i>	many-seeded
<i>platyphyllus</i>	broad-leaved	<i>Polystichum</i>	Gr. many rows
<i>platypodus</i>	broad-footed or stalked	<i>polystictus</i>	many-dotted
<i>platyspermus</i>	broad-seeded	<i>pomaceus</i>	pome-like
<i>Platystemon</i>	broad stamen	<i>Pomaderris</i>	Gr. lid and skin
<i>Platystigma</i>	Gr. broad stigma	<i>pomeridianus</i>	afternoon
<i>Pleione</i>	Gr. Pleione, mother of the Pleiades	<i>pomifera</i>	pome-bearing
<i>pleioneurus</i>	many-nerved	<i>pomponius</i>	of a tuft or top-knot
<i>Pleiospermum</i>	Gr. many and seed	<i>Poncirus</i>	Fr. poncire, a kind of citron
<i>pleniflorus</i>	double flowered	<i>ponderosus</i>	ponderous, heavy
<i>plenissimus</i>	very full or double	<i>ponticum</i>	from Pontus, Asia Minor
<i>plenus</i>	full, double	<i>populifolius</i>	poplar-leaved
<i>pleurostachys</i>	side-spiked	<i>populneus</i>	pertaining to poplars
<i>Pleurothallis</i>	Gr. lateral branch and to blossom	<i>Populus</i>	ancient Latin name
<i>plicatus</i>	plaited, folded	<i>porcinus</i>	pertaining to swine
<i>plumarius</i>	feathered	<i>porophyllus</i>	leek-leaved
<i>plumbaginoides</i>	plumbago-like	<i>porphyreus</i>	purple
<i>Plumbago</i>	Lat. lead	<i>porphyroneurus</i>	purple-nerved
<i>plumbeus</i>	of lead	<i>Portulaca</i>	Latin name
<i>Plumeria</i>	for Chas. Plumier, d. 1704	<i>Portulacaria</i>	similar to Portulaca
<i>plumosus</i>	feathery	<i>portulaceus</i>	portulaca-like
<i>pluriflorus</i>	many-flowered	<i>potamophilus</i>	swamp-loving
<i>Poa</i>	ancient Gr. name for grass	<i>Potaninii</i>	for Potanin, Russian traveler
<i>poculiformis</i>	deep cup-shaped	<i>potatorum</i>	of the drinkers
<i>podagricus</i>	gouty-stalked	<i>pothinum</i>	much desired
<i>Podalyria</i>	for Podalyrus, son of Aesculapius	<i>praealtus</i>	very tall
<i>podalyriaefolius</i>	podalyria-leaved	<i>praeclarum</i>	very remarkable
<i>Podocarpus</i>	with stalked fruits	<i>praecox</i>	very early
<i>Podolepis</i>	Gr. foot and scale, having scaly stalks	<i>praemorsus</i>	bitten on the end
<i>podolicus</i>	of Podolia (Russia)	<i>praestans</i>	distinguished
<i>Podophyllum</i>	foot-leaf	<i>praeteritum</i>	passed over
<i>poeticus</i>	pertaining to poets	<i>praetextus</i>	bordered
<i>Pogonia</i>	Gr. bearded	<i>praevernium</i>	before the spring
<i>Poinciana</i>	for M. de Poinci, Governor of Antilles, 17th century	<i>prasinatus</i>	greenish
<i>Polanisia</i>	Gr. many, unequal	<i>prasinus</i>	grass-green
<i>Polemonium</i>	ancient Gr. name	<i>pratensis</i>	of meadows
<i>Polianthes</i>	Gr. white flower	<i>Prattii</i>	for A. E. Pratt
		<i>pravissumus</i>	very crooked
		<i>precatorius</i>	prayerful
		<i>Premna</i>	Gr. stump of a tree
		<i>Prenanthes</i>	Gr. drooping blossom
		<i>preptum</i>	distinguished
		<i>Primula</i>	first in spring
		<i>primulaefolius</i>	primrose-leaved
		<i>primulinus</i>	primrose-like
		<i>primuloides</i>	primrose-like
		<i>princeps</i>	princely, first
		<i>Prinsepia</i>	for Macaire-Prinsep, botanist at Geneva



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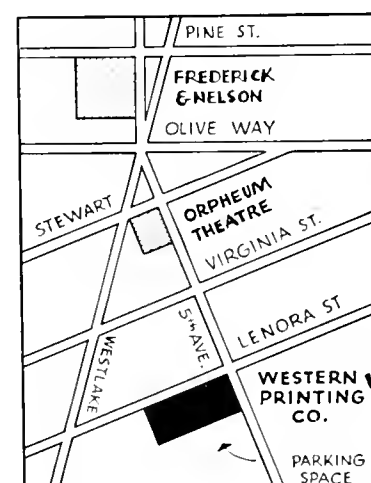
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